V23154

ENGLISH

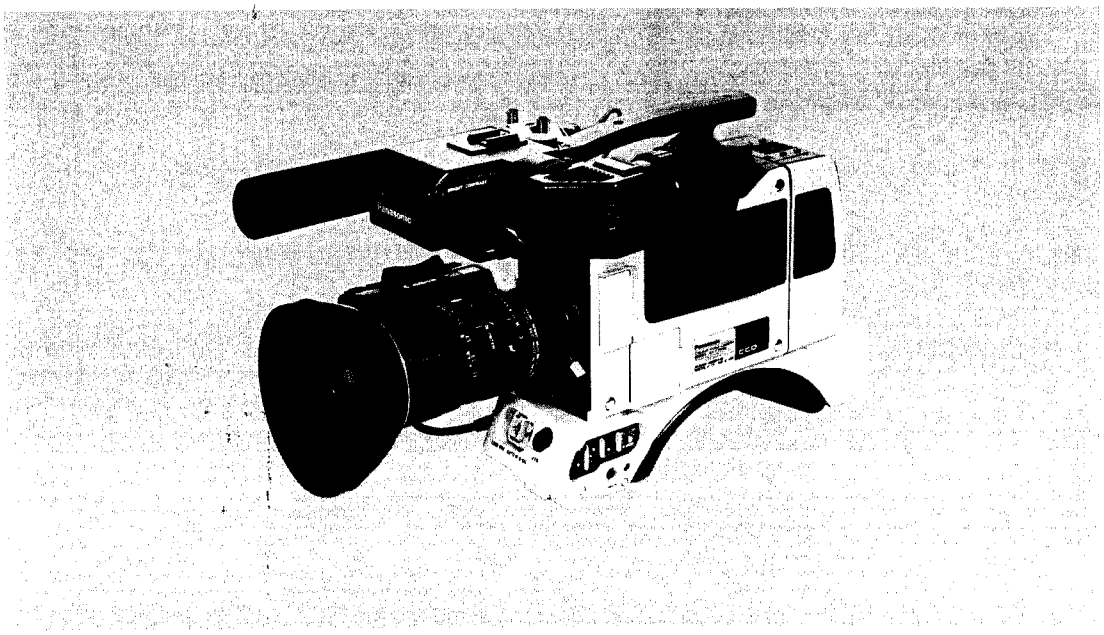
DEUTSCHE

FRANÇAISE

Operating Instructions

PAL Colour Video Camera

WV-F200AE Series



Panasonic

Before attempting to connect or operate this product, please read these instructions completely.

ENGLISH VERSION

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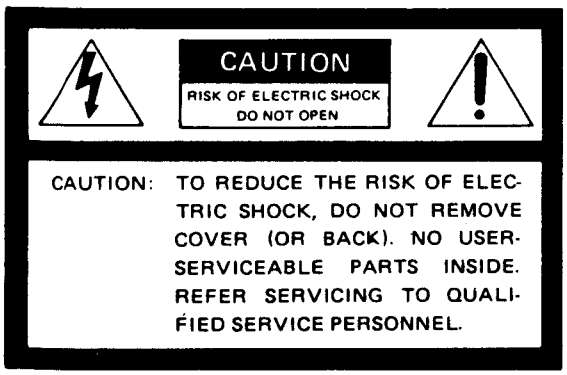
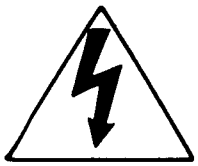

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This model conforms to the EC directive (for radio interference) 82/499/EEC.

This apparatus was produced to BS 800:1983.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

The serial number of this product may be found on the bottom of the unit.
You should note the serial number of this unit in the space provided and retain this instructions as a permanent record of your purchase to aid identification in the event of theft.

Model No. _____

Serial No. _____

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

PREFACE

A CCD camera is characterized by small size, light weight and low power consumption. Further, its advantages are high sensitivity, high resistance to burn-in, extremely low lag and no need for registration adjustment. All of these features and many more together with high performance and the latest in technological break-throughs are offered in this Professional Video Camera from Panasonic.
The camera employs a high-resolution prism and a unique signal processing circuit to achieve resolution as high as 620 lines, thus satisfying the demanding picture quality specifications of the next generation S-VHS system.

The camera may be combined with an MII format VTR, for use as a camera/recorder system with resulting high picture quality.
The Panasonic 3-CCD Colour Video Camera WV-F200AE is built to the most exacting standards and is a true professional camera of the highest quality and reliability.

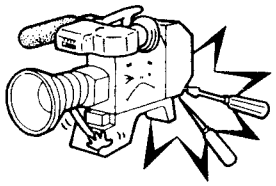
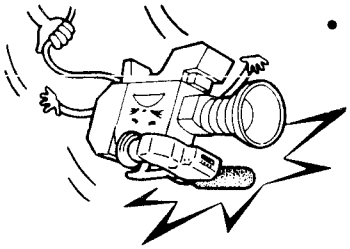
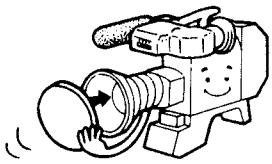
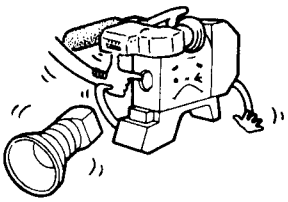
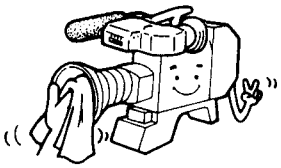
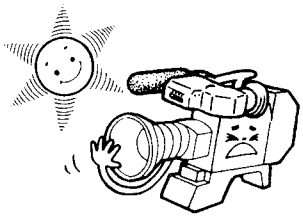
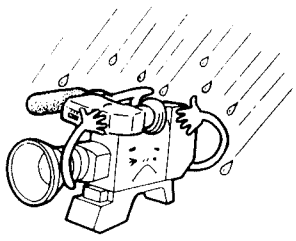
FEATURES

1. Self-contained, well-balanced, compact ENG/EFP portable colour video camera.
2. High-performance middle index prism optical system with three 2/3" CCDs.
3. Horizontal resolution of 620 lines (typical).
4. Signal-to-noise ratio of 57 dB (typical)
5. Extra resistance to burn-in
6. Extremely low lag
7. No pattern distortion
8. Not affected by geo-magnetism
9. PAL output for use with most VTRs on market
10. May be combined with S-VHS or MII format recorders
11. 1.5" electronic viewfinder (1-3/8" actual image size, measured diagonally) can be freely tilted and adjusted for most comfortable viewing.
12. Side-mounted unidirectional electret condenser microphone
13. Conventional auto-white balance setting with two memories
14. Automatic setting of black balance with memory hold
15. +9 dB and +18 dB high gain selection switch
16. Minimum illumination of 30 lux at F1.7 with +18 dB gain
17. Internal PAL standard sync generator and gen-lock operation
18. Switchable audio output level: −20 dB and −60 dB
19. Vertical Enhancer of 2H
20. 3-position aperture level
21. Built-in EBU colour bar generator
22. Audio monitor output (for earphone)
23. Positive/negative VTR trigger polarity switch
24. Colour temperature conversion filters: 3200°K, 5600°K, 5600°K with 1/8 ND and closed
25. Viewfinder character display for system check
26. Can be operated on five different power sources: Rear-mounted NiCad battery pack, rear-mounted AC adaptor, optional Remote Control Unit (RCU), optional portable VTR or an external 12 V DC source.
27. Die-cast chassis for rigid alignment of the optical system and metal housing for extended durability and RF rejection.
28. Servo control zoom lens with automatic iris control
29. Iris 1/2 open/close switch
30. Standby switch for reduced power consumption in between recordings
31. Full studio adaptability with 5" Electronic Viewfinder (4.5" actual image size, measured diagonally) and Remote Control Unit (RCU)

CAUTION: THIS CAMERA MAY NOT FUNCTION PROPERLY IF IT IS CONNECTED TO A VTR OF OTHER MANUFACTURE THAN PANASONIC.

PRECAUTIONS

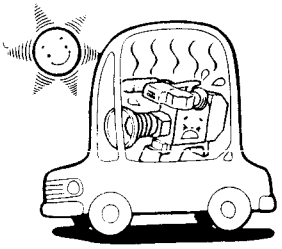
The WV-F200AE is a sensitive, high quality instrument and should be regarded as such. Because it is an electrical device, the danger of electric shocks exists if it is used carelessly.

DONT'S		DO'S
x Do not attempt to disassemble the camera, Remote Control Unit (RCU) or other units. In order to prevent electric shock, do not remove screws or covers. There are no user-serviceable parts inside.		• Do refer any servicing to qualified service personnel.
x Do not abuse the camera. Avoid striking, shaking, etc. The camera contains sensitive components which could be damaged by improper handling or storage.		• Do handle the camera with care.
x Do not let the lens remain uncapped when the camera is not in use. If the lens is not installed, do not leave the lens mount hole uncovered.		• Do protect the precision-made lens by placing the lens cap over the lens when the camera is not in use. If the lens is not installed, protect the surface of the prism by placing the body cap into the lens mount hole.
x Do not touch the surface of the lens or prism with your fingers.		• Do use a mild blower of lens cleaning tissue designed for coated lenses, to clean the surface of the lens prism in the event that it should become dirty.
x Do not use strong or abrasive detergents when cleaning the camera body.		• Do use a dry cloth to clean the camera if it is dirty. In case the dirt is hard to remove, use mild detergent and wipe gently.
x Do not aim the camera toward the sun, no matter whether it is turned on or not.		• Do use caution when operating the camera in the vicinity of spot lights or other bright lights, as well as light reflecting objects and surfaces.
x Do not expose the camera or Remote Control Unit (RCU) to rain or moisture, and do not try to operate the equipment in wet areas. Do not operate the camera or RCU if it becomes wet.		Do take immediate action if ever the camera or RCU should become wet. Turn the power off and have the unit checked by an authorized serviceman.

× Do not operate the camera or Remote Control Unit (RCU) outdoors during a lightning storm.

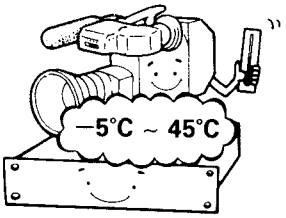
• Do follow the normal safety precautions to avoid personal injury.

× Do not leave the camera or Remote Control Unit (RCU) in a closed car or trunk during summer. The temperature can reach or exceed those limits which electrical devices, including your camera and RCU, can normally withstand.



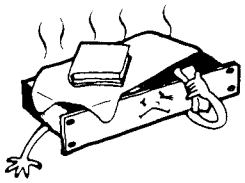
• Do pay attention to excessive temperatures inside your car and be sure to remove the equipment when leaving the car. (This will also keep tempted thieves out of your car.)

× Do not use the camera in an extreme environment where high temperatures or high humidity is recorded.



• Use the camera in an environment where the temperature is within –5°C — 45°C, and the relative humidity within 30% — 90%.

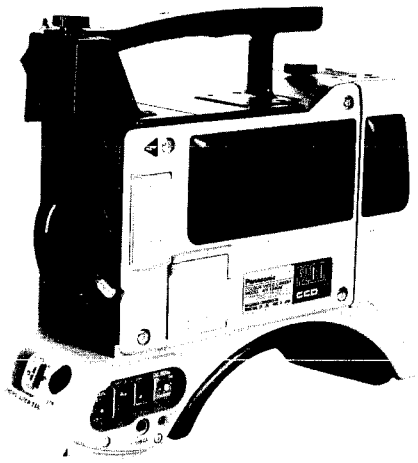
× Do not leave the camera and Remote Control Unit (RCU) turned on when not in use.
Do not turn the power on and off repeatedly if the camera is not used. Do not block the ventilation slots.



• Always turn the power off when the camera is not going to be used.
Operate the camera and Remote Control Unit (RCU) only when there is adequate ventilation.

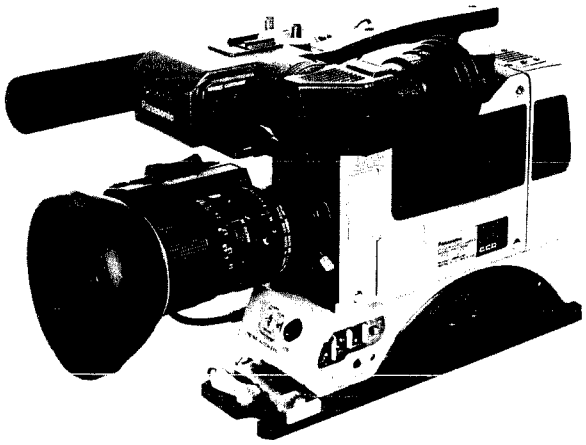
PANASONIC WV-F200AE SERIES SYSTEM PARTS AND ACCESSORIES

■ Colour Camera
(WV-F200AHE)



• Camera Head	WV-F200AHE
• Camera Adaptor	WV-AD42BE

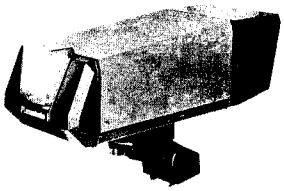
■ Colour Camera
(WV-F200AE)



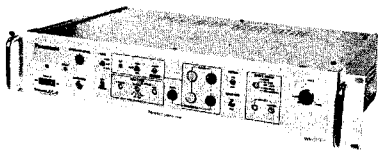
• Camera Head	WV-F200AHE
• Camera Adaptor	WV-AD42BE
• 1.5" Electronic Viewfinder	WV-VF38AE
• 12X Servo Control Zoom Lens	J12X10BKRSM
• Microphone	WV-MC35
• Tripod Mounting Adaptor	WV-Q47
• Carrying Case	WV-CC37E

■ 1.5" Electronic
Viewfinder
(WV-VF38AE)

■ 5" Electronic
Viewfinder
(WV-VF65BE)

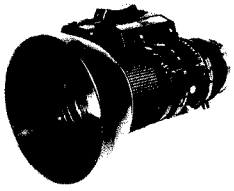


■ Remote Control Unit (RCU)
(WV-RC36)

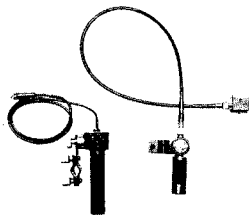


■ Unidirectional Electret
Condenser Microphone
(WV-MC35)

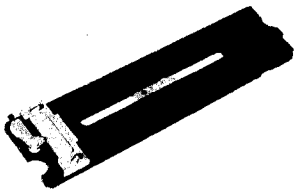
■ Servo Control
Zoom Lens
(J12X10BKRSM)



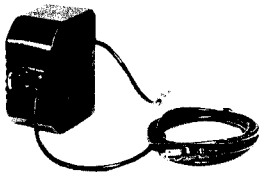
■ Lens Control Kit
(WV-LK35E)



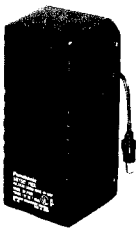
■ Tripod Mounting
Adaptor
(WV-Q47)



■ AC Adaptor/Charger
(WV-PS31)

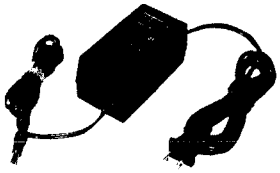


■ Battery Pack
(WV-PS60E)



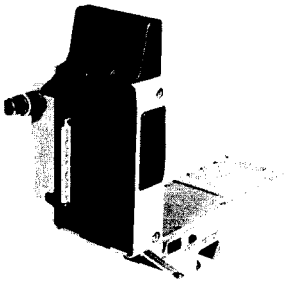
(WV-PS33E)

■ Battery Charger
(DE-1232)



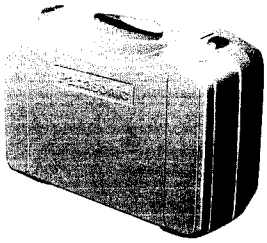
(WV-BC30)

■ MII VTR Adaptor
(WV-VT10E)

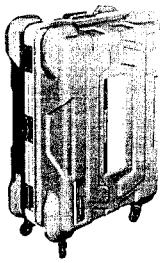


■ Battery Adaptor
(WV-AD19)

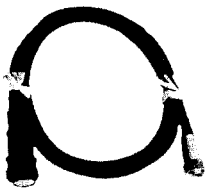
■ Carrying Case
(WV-CC37E)



■ Carrying Case
(WV-CC38E)



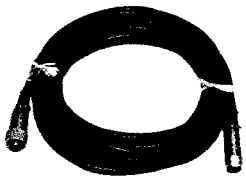
■ VTR Cable
(WV-CA32/10)



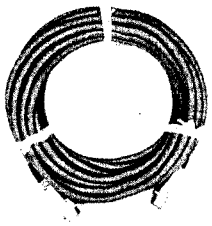
(WV-CA32A/14)

(WV-CA32A/26)

■ VTR Extension Cable
(10H-30AS,
10H-50AS)



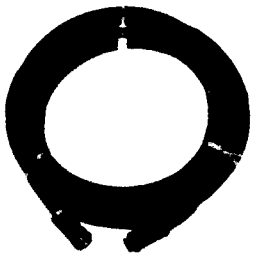
(WV-CA14X30)



■ S-VHS Cable
(WV-CA38)

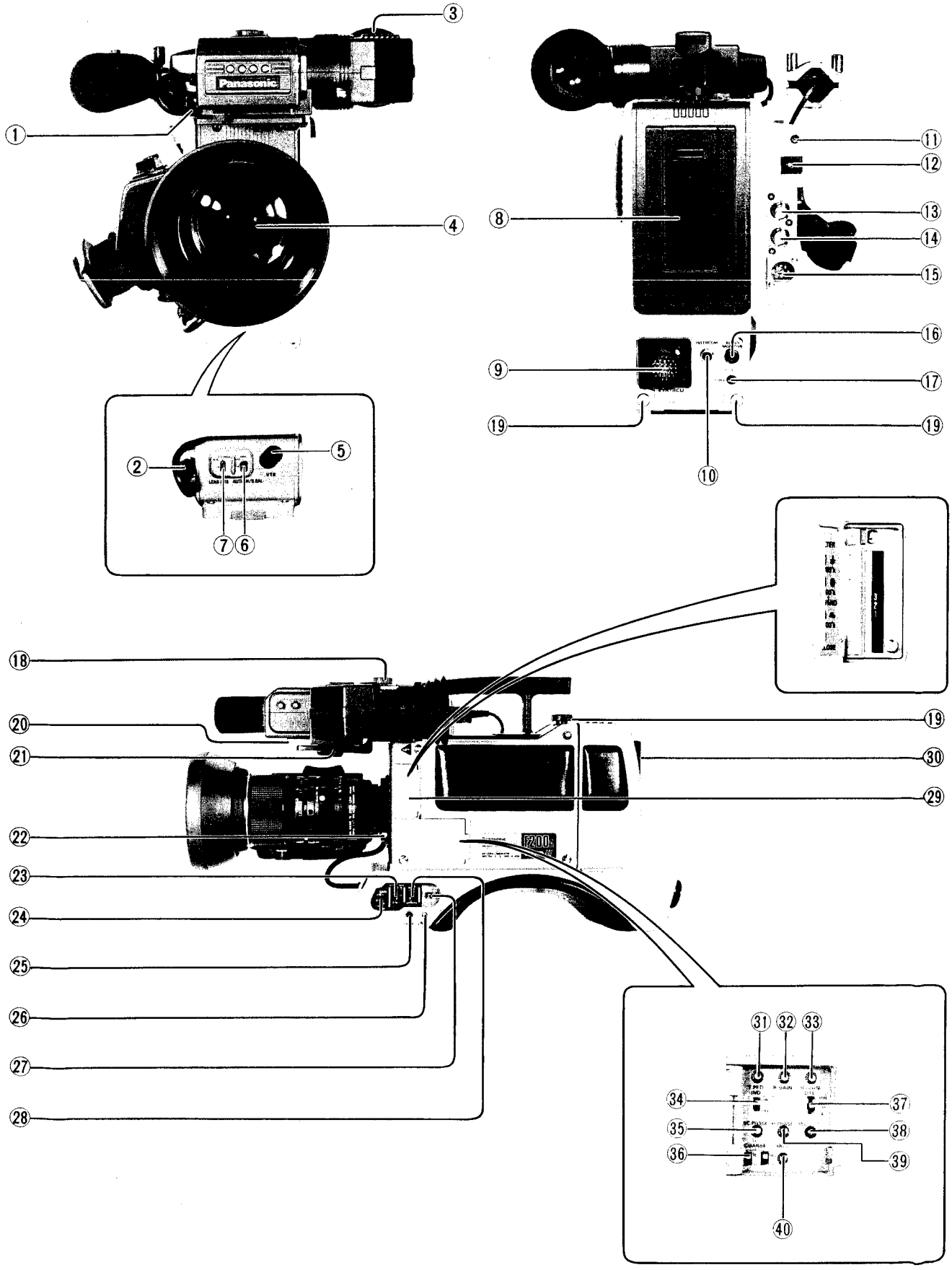
■ Lens Connector
Conversion Cable
(WV-LC10)

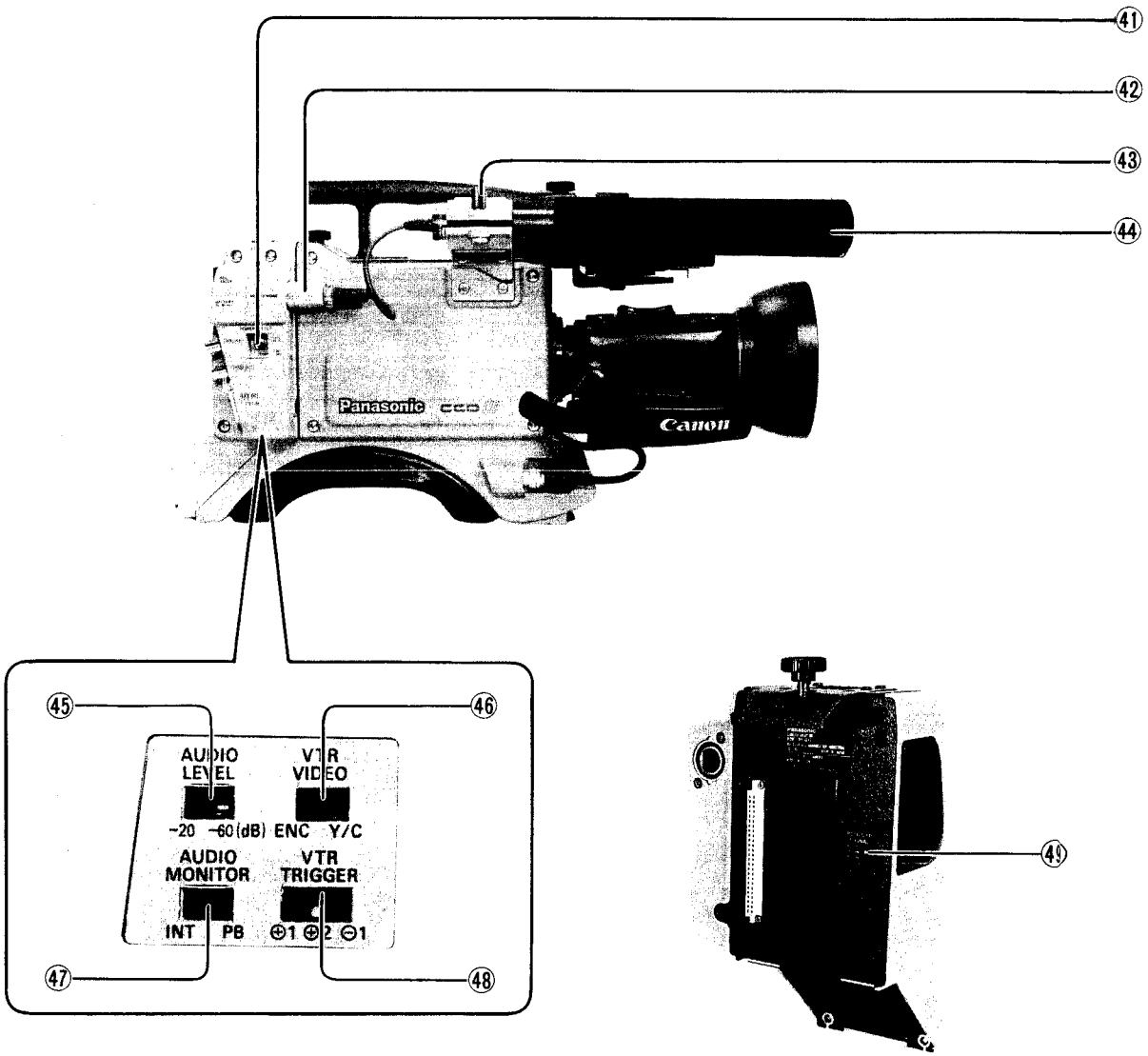
■ Studio Cable
(32A-25, 32A-50,
32A-100)



MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS

ENG Colour Camera System, WV-F200AE Series





1. Viewfinder Connector (12-pin) (VIEWFINDER)
Connect the viewfinder cable from the 1.5" or 5" Electronic Viewfinder to this connector.

Note: When connecting the 5" Electronic Viewfinder WV-VF65B) to this connector, use the Viewfinder Conversion Cable supplied with the WV-VF65B. Refer to page 26 for details.

2. Lens Connector (12-pin) (LENS)
Connect the lens cable to this connector.

Note: If the Auto Iris Servo Control Zoom Lens with an 8-pin connector is to be used, the optional Lens Connector Conversion Cable WV-LC10 is required. This will allow proper matching of the 8-pin connector of the lens with the 12-pin connector of the camera.

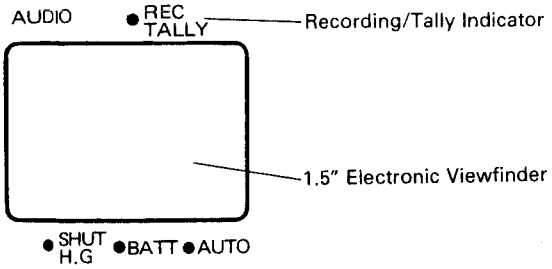
3. 1.5" Electronic Viewfinder
This small 1.5" (1-3/8" actual image size) monitor shows exactly the image picked up by the lens. The viewfinder can be tilted 90° from horizontal and it is adjustable up and down by approximately 13/16" (20 mm). Further, the viewfinder may be slid laterally by up to 1-3/4" (45 mm) and 13/16" (20 mm) back and forth.
Refer to page 32 for details.

4. Auto Iris Servo Control Zoom Lens
This is a high-quality 10 — 120 mm lens offering automatic as well as manual iris control and servo control zoom. The lens features a bayonet mount and F1.7 maximum aperture. Picture size may be magnified by up to 12 times through use of the zoom feature. Simply rotate the zoom/macro ring for close-up or wide angle recording. Macro shooting is possible of objects up to 1 cm (3/8") from the lens surface.
Refer to page 15 for details.

5. VTR Start/Stop Button (VTR) (parallel operation)

This button is used to change the recorder mode from pause (Recording Pause) to recording and functions in the same way as the VTR Start/Stop Button ㉕ on the lens. Press once to start recording.

While recording, the Tally indicator in the viewfinder lights and the Tally Light ㊶ on the viewfinder also lights.



When the button is pressed once more, the recorder is set to the Pause mode (Recording Pause), and the Recording/Tally indicator and Tally Light will go off.

Note: If the attached zoom lens features a lock-release type VTR start/stop button, this VTR Start/Stop button functions only when the corresponding button on the lens is released.

6. Auto White/Auto Black Set Switch (AUTO W/B BAL AWC/HOLD/ABC)

This switch sets the white balance and black balance automatically as follows:

AWC: This position is used for setting the white balance when the White Balance Selection Switch ㉓ is set to the AWC A or AWC B position. White balance adjustment is required when "AWC A NG" or "AWC B NG" starts blinking in the viewfinder or when the Auto Warning Indicator in the viewfinder lights.

Two white balance settings for two light sources, such as indoor and outdoor, can be retained in the memory. In this case both the AWC A and AWC B positions are used.

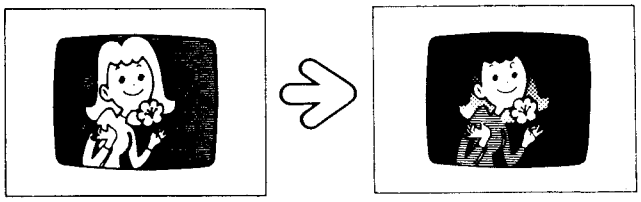
HOLD: In this position, the white and black balances set at the AWC or ABC position can be held fixed if so desired for at least one year.

ABC: This position is used for setting the black balance. Black balance adjustment is required when "ABC NG" starts blinking in the viewfinder or when the Auto Warning Indicator in the viewfinder lights.

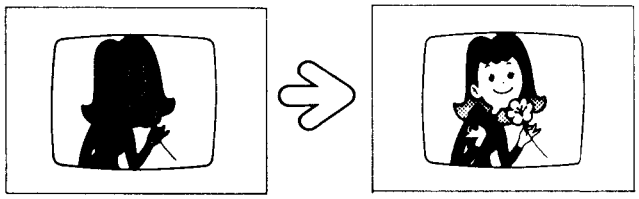
Note: Since the black balance adjustment always is performed automatically first at 0 dB gain and then at +18 dB gain, the picture will flash in the viewfinder while the black balance is being set. This flashing will help inform you of present adjustment, so as not to confuse the image with a high gain setting of the High Gain selection switch (0 dB or 18 dB).

7. Lens Iris Selection Switch (LENS IRIS; 1/2 OPEN/NOR/1/2 CLOSE)

This switch can be used to set the lens iris opening to compensate for unusual lighting conditions. If the object is brightly lit against a dark background, set this switch to the 1/2 CLOSE position. This will close the lens iris by a 1/2 F-stop.



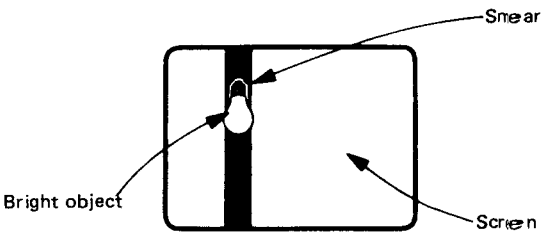
If the object is relatively dark and the background is bright, set the switch to the 1/2 OPEN position. This will open the lens iris by a 1/2 F-stop.



At the normal (NOR) position, the lens is operating with normal lens iris openings.

Note:

1) If this switch is used, be sure to return it to the detent NOR position after use.
2) If the camera is aimed at an extremely bright object, such as the sun or a lamp, vertical bars (i.e. smear) may appear in the picture. This is a peculiar phenomenon of the CCD and is quite normal. Try as much as possible to avoid shooting scenes with extremely bright light, as this could also be harmful to the camera.



3) Set this switch to the NOR position when the camera is used together with the Remote Control Unit (RCU).
4) If a zoom lens with an 8-pin connector is used, the Lens Connector Conversion Cable WV-LC10 must also be used. In this case the lens iris selection switch may be effective by setting the iris selection switch on the lens to the R (Remote) position.

8. **Battery Pack Mounting Angle**
Mount the Battery Pack WV-PS60/WV-PS33 or the AC Adaptor/Charger WV-PS31 on the camera by sliding it down along this mounting angle.

9. **VTR/RCU Connector (32-pin) (VTR/RCU)**
When using the camera together with a Panasonic portable colour VTR, the supplied VTR cable should be connected between the camera and VTR. This connector is also used for connection of the 32-pin studio cable from the Remote Control Unit (RCU) for comprehensive system operation. When connecting the 32-pin studio cable to this connector, the camera is automatically set to the RCU operation mode.
1/2" VHS and 3/4" U-vision portable VTR (10-pin)
WV-CA32/10 (32P 10P cable)
3/4" U-vision portable VTR (14-pin)
WV-CA32A/14 (32P-14P cable)
MII portable VTR (26-pin)
WV-CA32A/26 (32P-20P cable)

10. **Intercom Jack (M6) (INTERCOM)**
This jack is used for communication between the camera operator and operators of the RCU and Special Effect Generator in the system.

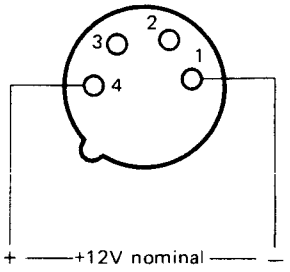
11. **Recording/Tally Indicator (red) (REC TALLY)**
This indicator lights when the camera is set to the recording mode (through the VTR Start/Stop button), and informs the person concerned of scenes being recorded.
The Tally indicator also lights when the camera is in full system operation together with the Remote Control Unit and Special Effects Generator.
In case a tape is not loaded or the tape end is reached, or if the servo mechanism is working improperly, this indicator will start blinking to warn the operator of such faults.

12. **Battery Connector (BATTERY)**
Connect the cord from the Battery Pack to this connector.

13. **Gen-lock Input Connector (BNC) (GEN-LOCK)**
The colour video signal of the camera is automatically synchronized to the gen-lock signal (composite or black burst) which is supplied to this connector. The gen-lock signal is used for system reference, such as when using the Special Effects Generator.
Caution: If the gen-lock signal is jittery (such as when obtained from VTR playback), the camera may not be able to synchronize properly.

14. **Video Output Connector (BNC) (VIDEO OUT)**
A composite video signal is provided at this connector.

15. **External DC Input Connector (XLR, 4-pin) (EXT DC)**
This connector accepts the power cable from an external DC source supplying nominal power of 12 V, 1.5 A (a belt type battery or car battery for example). This connector also accepts the power cable from an AC adaptor. For driving the studio configuration, a 12 V DC, 2.5 A power source is required.



16. **Audio Monitor Jack (M3) (AUDIO MONITOR)**
When an earphone is connected, the sound picked up through the microphone ㊹ or played back audio on the 3/4" U-vision recorder connected to the camera through the 14-pin camera connector can be monitored. Selection of the audio source is enabled by the Audio Monitor Selection switch ㊼.

17. **Audio Monitor/Intercom Level Control (LEVEL)**
Use this control to freely adjust the volume level in the earphone connected to the Audio Monitor Jack ⑯ or the headset connected to the Intercom Jack ⑩.

18. **Viewfinder Height Adjustment Knob (UP/DOWN)**
The height of the viewfinder can be adjustedby turning this knob. Adjustment of up to 13/16" (20 mm) is possible.

19. **Camera Adaptor Holding Screw/Knob**
The camera adaptor can be removed from the camera after loosening the two screws on the rear of the camera and one knob on the top of the camera. The camera adaptor has been pre-installed at the factory.

20. **Viewfinder Mounting Base**
The 1.5" Electronic Viewfinder WV-VF38AE is mounted on the camera by first installing this base on the camera.
Refer to page 22 No. 4 for detailed mounting instructions.

21. Viewfinder Lock Lever

The viewfinder is locked and released through use of this lever.

When the lever is released, the viewfinder can be slid approximately 1-3/4" (45 mm) laterally and 13/16" (20 mm) back and forth. Be sure to lock the lever after having adjusted the viewfinder position.

22. Lens Hold Ring/Knob

Turn this ring/knob clockwise to secure the lens to the camera.

23. White Balance Selection Switch (WHITE BAL; AWC A/B/P.SET)

This switch is used to select the white balance mode as follows:

AWC A: The white balance can be set automatically by pressing the Auto White/Auto Black Set Switch ⑥ upwards. The setting is stored in memory A.

AWC B: Similar to AWC A, but the setting is stored in memory B.

P.SET (preset): Proper white balance is achieved for 3200°K colour temperature and with the Filter Wheel ㉙ set to position 1.

Note:

1) Two white balance settings, one each for different lighting conditions such as indoor and outdoor, may be stored in the two memories AWC A and AWC B.
2) This switch should be set to the AWC A or AWC B position when the RCU is used.

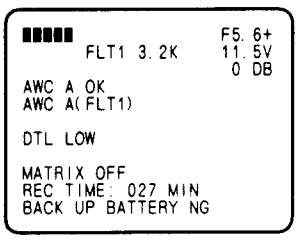
24. High Gain Selection Switch (GAIN +9 dB/0/+18 dB)

Normally set this switch to the 0 dB position. Positions +9 dB and +18 dB increase the video output amplitude for dark scenes and are equivalent to opening the lens iris 1.5 or 3 F-stops, respectively.

25. Check Button (CHECK)

The operating conditions of the camera can be displayed on the viewfinder by keeping this button pressed. Refer to page 44 for details.

CHECK



26. Power Indicator (POWER)

This indicator lights red when the camera is operating. When the camera is in the standby mode, the indicator lights green.

27. Power Switch (DC POWER; OFF/STANDBY/ON)

This switch selects the operating mode of the camera as follows:

OFF: Power to the camera is turned off.

STANDBY: The main camera circuit is turned off. The heater of the CRT viewfinder is on, however. The Power Indicator ㉖ lights green at this position.

ON: The unit is in the operating condition after necessary adjustments have been made. The Power Indicator lights red.

Note: This switch should be set to the ON position when the camera is used with the Remote Control Unit (RCU).

28. Colour Bar/Camera Selection Switch (BAR/CAMERA)

This switch selects the video output signal as follows:

BAR: An EBU colour bar is provided from the Video Output connector ⑭ and the VTR/RCU connector ⑨.

CAMERA: The actual picture as picked up through the lens is displayed.

Note: This switch is inoperative when the RCU is used.

29. Filter Wheel

To set the filter wheel, flip open the cover.

The filter wheel is a four-position wheel which controls two built-in colour temperature conversion filters and one ND filter.

(1) 3200°K — indoor light (tungsten, halogen, quartz lamps)

(2) 5600°K +12.5% ND — daylight (sunny)

(3) 5600°K — daylight (cloudy/rainy)

(4) Closed

Select the position according to the light source (see page 43). The position of the filter wheel is displayed in the viewfinder when the CHECK button ㉕ is pressed.

30. Camera Adaptor

The camera adaptor is pre-installed on the camera at the factory. The adaptor is required for ENG, EFP and studio applications. It should be removed if the camera is to be used with MII format portable VTRs. This will allow mounting the MII VTR adaptor WV-VT10 on the camera.

31. Total Pedestal Level Control (T.PED)

This control can adjust the pedestal level of the video signal (luminance) for matching the pedestal level of more than two cameras in the system. Use a waveform monitor or oscilloscope for precise adjustment.

32. Red Gain Control (R.GAIN)

This control only works when the White Balance Selection switch ㉓ is set to the AWC A or AWC B position. The control is used to match the red gain with the colour signals of other cameras in the system. The red gain should be adjusted only after the white balance adjustment has been performed.

33. Blue Gain Control (B.GAIN)

This control only works when the White Balance Selection switch ㉓ is set to the AWC A or AWC B position. The control is used to match the blue gain with the colour signals of other cameras in a system. The blue gain should be adjusted only after the white balance adjustment has been performed.

Note: The Red and Blue Gain controls ㉜ & ㉝ cannot be operated when the White Balance Selection switch ㉓ is set to P.SET.
Be sure to set the Red and Blue Gain controls to the center positions before adjusting the white balancing. Otherwise, the control range of each control will be unbalanced.

34. Level Indicator ON/OFF Switch (LEVEL IND ON/OFF)

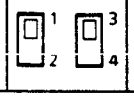
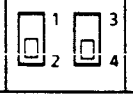
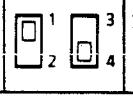
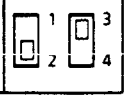
When this switch is set to ON, picture images exceeding the specified level (0.7 Vp-p) will produce a zebra pattern in the viewfinder.
If the background is bright and the object appears too dark in the automatic iris control mode, the lens iris should be adjusted manually until the zebra pattern barely appears. If the zebra pattern is visible, overexposure of the background will take place.
When in the automatic iris control mode, set this switch to OFF.

35. Subcarrier Phase Fine Control (SC PHASE)

This control allows fine adjustment of the subcarrier phase set by the Subcarrier Phase Coarse Switches ㊱. The control allows continuous control of up to +90° subcarrier phase to match the phase of the subcarrier signal obtained at the Gen-Lock Input connector ⑬.
This control should be adjusted together with the Subcarrier Phase Coarse switches ㊱ when the camera is used in a system configuration including the Special Effects Generator. Refer to page 36 for details.

36. Subcarrier Phase Coarse Switches (SC PHASE COARSE)

The subcarrier phase of the camera signal can be adjusted from 0° to 360° in 90° steps with these switches, as shown below, for matching the phase of the subcarrier signal at the Gen-Lock Input connector ⑬. These switches should be set when the camera is used in a system configuration with the Special Effects Generator. Refer to page 36 for details.

Subcarrier Phase	0°	90°	180°	270°
Position of Switches				

37. Detail Level Selection Switch (DTL HIGH/LOW/OFF)

The detail/aperture level can be selected by this switch in three steps. Set the switch to the desired position while observing the sharpness of the picture.

38. Recording Time Reset Button (REC TIME)

The accumulated recording time is displayed in the viewfinder under REC TIME while the CHECK button ㉕ is pressed. The time can be reset to "0 MIN" by pressing this button. Thus, total recording time can easily be checked by pressing this button at the outset of a new recording.

Note: For studio application, the time the Tally light lights is accumulated in the viewfinder REC TIME display.

39. Horizontal Phase Control (H.PHASE)

The horizontal phase of the camera signal can be adjusted to match the horizontal phase of the signal at the Gen-Lock Input connector ⑬.
This control should be adjusted when the camera is used in a system configuration with the Special Effects Generator. Refer to page 36 for details.

40. Lens Iris Control (IRIS)

The auto iris level can be adjusted by this control. When replacing the lens, check the output signal of the camera and make necessary adjustment with this control if this is required.

Note: If a zoom lens with an 8-pin connector is used, the Lens Connector Conversion Cable WV-LC10 must also be used. In this case the lens iris control will have no effect. If such adjustment should be necessary, please use the lens iris control on the lens.

41. Power Selection Switch (POWER SELECT BATT/EXT DC-VTR/RCU)

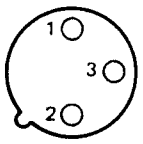
Using this switch, the desired power source connected to the camera may be freely selected.

BATT/EXT DC: This position is used for power supply from the battery pack, an external DC source or through an AC adaptor.

VTR/RCU: This position is used when power is to be supplied through the 32-pin connector from the VTR or the Remote Control Unit (RCU).

42. Microphone Connector (XLR, 3-pin) (MICROPHONE)

Connect the cord from the optional microphone WV-MC35 to this connector.



1 : Shield
2 : Hot
3 : Cold

43. Microphone Holding Knobs

To secure the microphone, turn these knobs clockwise.

44. Microphone

This is an unidirectional monaural electret condenser microphone. The microphone is highly sensitive to sounds coming from in front of it. The output level of the microphone is approximately −70 dB.

45. Audio Level Selection Switch (AUDIO LEVEL −20/−60 dB)

Two audio output levels to the VTR can be selected: −20 dB or −60 dB. The camera has been preset to −20 dB at the factory.

46. VTR Video Output Selection Switch (VTR VIDEO ENC-Y/C)

This switch selects the video output signal supplied at the VTR/RCU connector ⑨.

ENC: A composite video signal is supplied for 1/2" VHS and 3/4" U-vision portable VTRs.

Y/C: A component signal (luminance (Y) and chrominance (C) signals) are supplied for S-VHS VTRs.

Note:

1) If this switch is set to the Y/C position, when a recorder other than an S-VHS recorder is used, colour recording cannot be made.
2) The camera has been preset to the ENC position at the factory.

47. Audio Monitor Selection Switch (INT/PB)

This switch selects the audio signal from the Audio Monitor jack ⑯ to be monitored.

INT: The sound picked up by the microphone can be monitored.

PB: The played back audio portion from the 3/4" U-vision recorder, obtained through the 14-pin camera connector, can be monitored.

Note: The camera has been preset to the INT position at the factory.

48. VTR Compatibility Switch (⊕1/⊕2/⊖1)

Set this switch according to the VTR which is connected to the camera.

⊕1: For 1/2" VHS VTRs.

⊕2: For 3/4" U-vision VTRs, connected to the camera using a 14-pin connector, S-VHS VTRs and MII portable VTRs.

⊖1: If a VTR of other manufacture is used, and if this VTR pauses when the tape should be running and vice versa, this switch should be set to this position.

Note:

1) The switch has been preset to the ⊕1 position at the factory.
2) Some VTRs may not operate properly when connected to this camera, even though the setting of this switch is changed. Please consult your dealer for further information.

49. RCU/VTR Signal Selection Switch (RCU/VTR SIGNAL Y/C/B-Y/PR/PB-R/G/B)

This switch selects the video output signal supplied at the VTR/RCU connector ⑨ on the camera and the Red, Green and Blue Output Connectors ⑱ on the remote control unit (RCU). The switch has been set to the R/G/B position at the factory. Refer to page 28 for selecting the RCU/VTR Selection Switch.

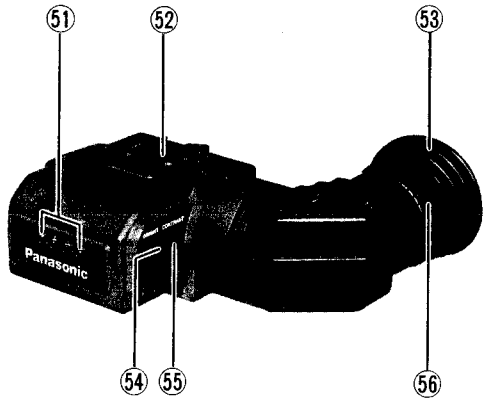
Y/C/B: The chrominance (C) and luminance (Y) signals are supplied from the R, G and B Output Connecters ⑱ for S-VHS format VTR.

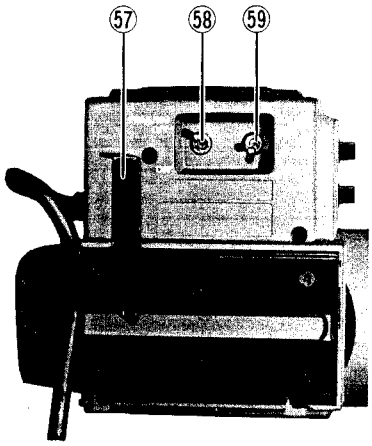
Y/PB/PR: The colour difference (R-Y & B-Y) signals and luminance (Y) signal are supplied from the VTR/RCU Connector ⑨ and the R, G and B Output Connectors ⑱ for MII format VTR.

R/G/B: The R, G and B signals are supplied from the R, G and B Output Connector ⑱.

Note: When connecting the VTR/RCU Connector ⑨ to the VTR other than MII format VTR by the VTR cable, set the switch to the R/G/B position.

1.5" Electronic Viewfinder WV-VF38AE





51. Tally Light
This light is lit when the Tally ON/OFF switch ⑲ is set to ON and the camera has been set to the recording mode with the VTR Start/Stop switch.
The Tally light indicates that recording is in progress.

52. Accessory Shoe
Allows convenient mounting of a light source, for effective illumination of the scene.

53. Eye Cap
The eye cap besides blocking out stray light, offers comfortable viewing of the monitor picture. The cap may be flipped open if this is desired.

54. Brightness Control (BRIGHT)
Turn this control clockwise to increase the brightness of the picture in the viewfinder.

55. Contrast Control (CONTRAST)
Turn this control clockwise to increase the contrast of the picture in the viewfinder.

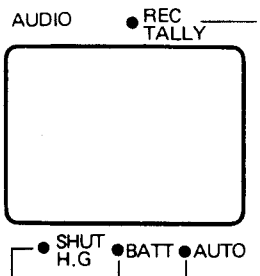
56. Diopter Adjustment Ring
Rotate this ring for optimum diopter setting.
Refer to page 32 No. 2 for adjustment procedure.

57. Viewfinder Side Stopper
When removing the viewfinder from the camera, first release the Viewfinder Lock lever ㉑ and then slide the viewfinder to the right (as viewed from the front) while pulling this stopper.

58. Peaking ON/OFF Switch (PEAKING ON/OFF)
Normally this switch should be set to OFF.
However, when shooting under low light conditions, setting this switch to ON, will facilitate easy focusing adjustment.

59. Tally ON/OFF Switch (TALLY ON/OFF)
This switch turns ON/OFF the Tally Light ⑤① located on front of the viewfinder.

LED Indicators in the Electronic Viewfinder



Recording/Tally Indicator (Red)
This indicator lights when the camera is set to the recording mode by pressing the VTR Start/Stop switch.
When using the camera with a 3/4" U-vision recorder through use of the 14-pin camera connector, if a video tape is not loaded, the tape end is reached or the servo mechanism is not working properly, this indicator blinks to warn the camera operator.

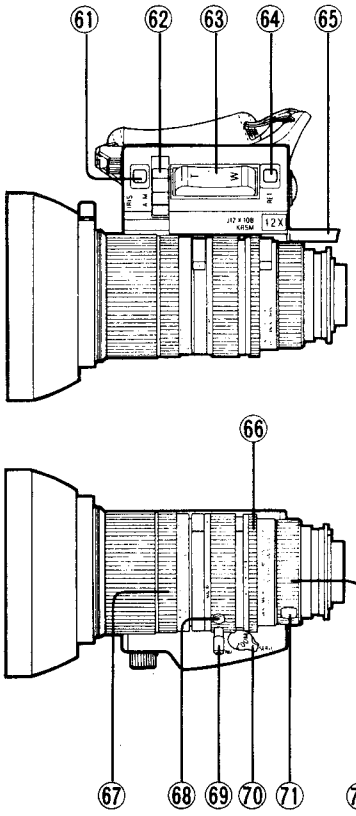
Auto Warning Indicator (Green)
This indicator blinks while the white balance or black balance is being automatically set. This indicator lights when the white or black balance is set improperly. In this case, carry out the automatic setting procedure for white and/or black balance.

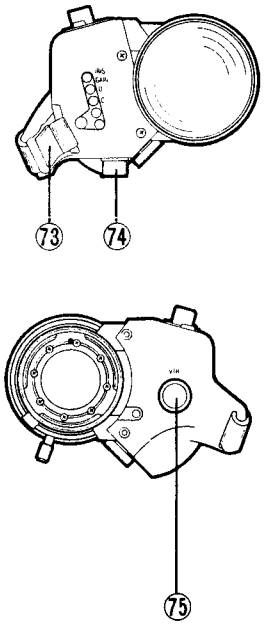
Battery Warning Indicator (Amber)
When this indicator blinks, the battery should be replaced. The battery will only supply sufficient power to the camera for a few minutes after the indicator starts blinking.

Shutter/High Gain Indicator (Green/Red)
The indicator lights red to indicate high gain selection of +9 dB or +18 dB with the High Gain Selection switch ㉔.

Note: If the portable VTR is not connected to the camera, the Recording/Tally indicator will not light.

12X Servo Control Zoom Lens J12X10BKRSM





61. Auto Iris Button

When this button is pressed while the Iris Control Selection switch ⑫ is set to the M (manual) position, the lens iris is automatically set according to the light intensity reaching the lens.

Note: Button must be pressed for 5 seconds or improper iris setting will result.

62. Iris Control Selection Switch (A/M)

This switch selects the operational condition of the lens iris.

A (Auto): The lens iris is automatically controlled. When the camera is used in studio applications together with the Remote Control Unit (RCU), the switch should be set to this position. In this case, the lens iris is remotely controlled from the RCU.

M (Manual): The lens iris can be manually controlled by rotating the Iris ring ⑯. With this setting, correct lens iris can be instantly set by pressing the Auto Iris button ⑪.

63. Servo Zoom Control (Wide/Tele)

The zoom function of this high quality 12:1 zoom lens can be controlled by pressing this control. Zooming to tele as well as wide angle is possible. Furthermore, the zooming speed can be controlled by changing the pressure applied on this control.

64. Return Video Button

When an auxiliary signal such as a lineview signal from a Special Effects Generator is supplied to the auxiliary connector of the Remote Control Unit (RCU) while the camera is set up for system operation, the signal can be previewed on the electronic viewfinder as long as this button is kept pressed.

When the 3/4" U-vision portable recorder, connected through the 14-pin camera input connector, or an S-VHS VTR recorder is set to the playback mode, the played back picture can be viewed as long as this button is kept pressed.

65. Lens Cable with 12-pin Connector

This cable supplies power to the servo control zoom motor and the automatic iris control device.

The cable should be connected to the Lens Connector ② on the camera.

66. Iris Ring

When the Iris Control Selection switch ⑫ is set to the M (manual) position, the lens iris can be manually adjusted by rotating this ring.

67. Focus Ring

Rotating this ring will change the lens focus.
By observing the picture in the viewfinder, correct focus can easily be set.
With the optional Lens Control Kit (WV-LK35), including flexible cable for the Zoom Remote Controller and Focus Controller, zooming and focusing can be remotely controlled.

68. Macro Button

For close-up shooting, rotate the Zoom Ring/Lever ⑲ to the macro area while pressing this button. After setting the Servo/Manual Zoom Selection switch ⑳ to the MANU (manual) position, close-up shooting up to approximately 10 mm (3/8") from the lens surface is possible by rotating the Zoom Ring/Lever.

69. Zoom Ring/Lever

By setting the Servo/Manual Zoom Selection switch ⑳ to the MANU (manual) position, zooming can be manually performed through use of this ring/lever. 12 times magnification is possible from wide angle to telephoto. When the Servo/Manual Zoom Selection switch ⑳ is set to the SERVO position, zooming is performed with the Servo Zoom control ⑬.

70. Servo/Manual Zoom Selection Switch (SERVO/MANU)

This switch is used to select between zooming by servo control or manually.

SERVO: Zoom operation is performed by pressing either side of the Servo Zoom control ⑬.

MANU: Zoom operation is performed manually by rotating the Zoom Ring/Lever⑲.

71. Flange-back Lock Knob

The Flange-back Adjustment Ring ㉒ can be locked by turning this knob.

72. Flange-back Adjustment Ring

The flange-back of the lens can be adjusted by rotating this ring. The Flange-back Lock knob ㉑ should be released prior to adjustment.

73. Hand Strap

The hand strap helps the camera operator in getting a firm grip on the camera. The hand strap length can be freely adjusted.

74. Connector for Zoom Remote Controller

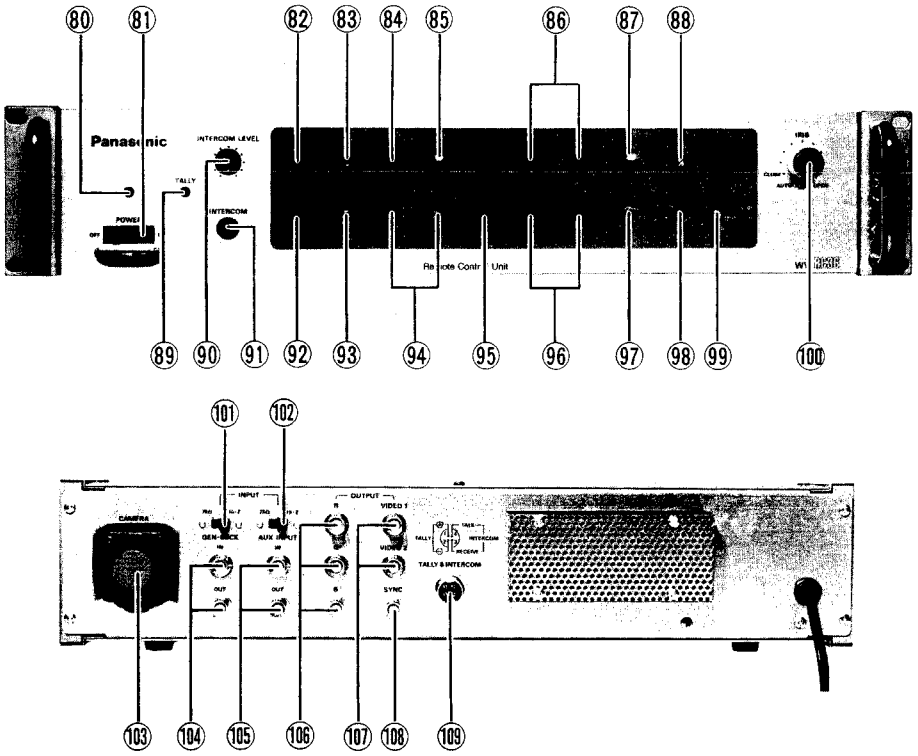
The Zoom Remote Controller, included in the Lens Control Kit WV-LK35, should be connected to this connector. This will allow remote control of zooming.

75. VTR Start/Stop Button (VTR)

This switch is used to start and pause the connected recorder. The function of the button is identical to the VTR Start/Stop Button ⑤ on the camera.
After having set the recorder to the recording standby mode, press this button to start and pause recording. While recording is in progress, the Recording/Tally indicator in the viewfinder and the Tally light ⑤1 on front of the viewfinder lights.

Note: If a zoom lens with an 8-pin connector is used, the lens connector conversion cable WV-LC10 must also be used. In this case, if recording is started by pressing the VTR Start/Stop button on the lens, the recording cannot be paused by pressing the VTR Start/Stop button ⑤ in the camera. To pause recording, the VTR Start/Stop button on the lens must be pressed again.

Remote Control Unit (RCU) WV-RC36



80. Power Indicator (Red)
This indicator lights whenever the unit is operated.

81. Power Switch (POWER ON/OFF)
This switch turns on and off the power to the RCU.

82. High Gain Selection Switch (+9 dB/0dB/+18 dB)
Normally set this switch to the 0 dB position. Positions +9 dB and +18 dB increase the video output amplitude for dark scenes and are equivalent to opening the lens iris 1.5 or 3 F-stops, respectively.

83. Auto Warning Indicator (Green) (SET)
This indicator blinks while the white balance or black balance is being automatically set. It goes out once the white and black balances have been correctly set.
This indicator lights when the white or black balance is set improperly. In this case, carry out the automatic setting procedure for white and/or black balance.

84. Auto White/Auto Black Set Switch (AWC/HOLD/ABC)
This switch sets the white balance and black balance automatically as follows:

AWC: This position is used for setting the white balance when the White/Black Selection switch ⑮ is set to the AUTO position. White balance adjustment is required when "AWC A NG" or "AWC B NG" is displayed in the viewfinder or when the Auto Warning Indicator on the RCU lights.

HOLD: In this position, the white and black balances set at the AWC or ABC position can be held fixed, if so desired, for at least one year.

ABC: This position is used for setting the black balance when the White/Black Selection switch ⑮ is set to the AUTO position. Black balance adjustment is required when "ABC NG" is displayed in the viewfinder or when the Auto Warning Indicator on the RCU lights.

Note: Since the black balance adjustment always is performed automatically first at 0 dB gain and then at +18 dB gain, the picture will flash in the viewfinder and on the monitor screen while the black balance is being set. This flashing will help inform you of present adjustment.

85. White/Black Balance Selection Switch (AUTO/MANUAL)

This switch is used to select the white balance and black balance modes as follows:

AUTO: The white balance and black balance can be set automatically by pressing the Auto White/Auto Black Set Switch ⑭.

MANUAL: The white balance and black balance can be adjusted by the Red and Blue Gain Controls ⑯ and the Red and Blue Pedestal Controls ⑯.

86. Red and Blue Gain Controls (R GAIN, B GAIN)

These controls are used to manually adjust the white balance.

These controls only work when the White/Black Balance Selection switch ⑮ is set to the MANUAL position. Turn the controls clockwise to increase the Red and Blue signal levels, and counter-clockwise to decrease the levels.

87. Detail ON/OFF Switch (DETAIL ON/OFF)

When set to ON, the edges of the objects in the picture are enhanced and a sharp picture is reproduced. The sharpness of the picture can be set by the Detail Level Selection Switch ⑰ on the camera.

A softer picture can be obtained by setting this switch to OFF.

Normally this switch should be set to the ON position.

88. Cable Length Compensation Switch (CABLE COMP)

This switch is used to compensate for extensive cable lengths used on the 32-pin studio cable between the camera and RCU.

50 m (150 ft): Use for cable lengths of less than 50 m (150 ft).

100 m (300 ft): Use for cable lengths of 50 — 100 m (150 — 300 ft).

200 m (600 ft): Use for cable lengths of 100 — 200 m (300 — 600 ft).

300 m (1000 ft): Use for cable lengths of 200 — 300 m (600 — 1000 ft).

89. Tally Indicator (Green) (TALLY)

When the RCU is used in conjunction with a Special Effects Generator, the Tally Light on the front of the viewfinder, the Tally Indicator inside the viewfinder as well as this indicator on the RCU will light to indicate that recording is in progress.

90. Intercom Level Control (INTERCOM LEVEL)

Use this control to freely adjust the volume level in the headset connected to the Intercom Jack ⑪.

91. Intercom Jack (INTERCOM)

This jack is used for communication between the camera operator and RCU operator in a system configuration with a Special Effects Generator.

92. Colour Bar/Camera Selection Switch (BAR/CAMERA)

In a system configuration, this switch is used for signal selection between camera mode and colour bar mode.

BAR: An EBU colour bar is provided from the Video Output connector ⑰ on the RCU.

CAMERA: The actual picture as picked up through the lens is displayed.

93. Horizontal Phase Control for Gen-lock (H PHASE)

The horizontal phase of the camera signal can be adjusted to match the horizontal phase of the signal at the Gen-lock Input connector ⑱.

94. Subcarrier Phase Coarse and Fine Controls (SC PHASE COARSE/FINE)

These controls allow adjustment of the camera signal subcarrier phase from 0° to 360°, to match the phase with that of the burst signal at the Gen-lock Input Connector ⑱ in a system configuration.

The COARSE control adjusts the subcarrier phase from 0° to 360° in 90° steps, while the FINE control allows continuous fine adjustment over a range of 90°.

95. Total Pedestal Level Control (TOTAL PEDESTAL)

This control can adjust the pedestal level of the video signal (luminance) for matching the black levelbetween two or more cameras in a system. Turn this control clockwise to increase the pedestal level, andcounter-clockwise to decrease the level.

96. Red and Blue Pedestal Level Controls (R & B PEDESTAL)

The black balance can be set manually by these controls when the White/Black Balance Selection switch ⑮ is set to the MANUAL position. Turn these controls clockwise to increase the Red and Blue pedestal levels, and counter-clockwise to decrease the levels.

97. Electronic Shutter ON/OFF Switch (SHUTTER ON/OFF)

This switch is operative only when a camera featuring the electronic shutter is connected with the RCU.

Fast-moving objects shot at slow shutter speeds, such as is only possible on normal cameras, will appear blurred. This camera, however, which features an electronic shutter can be switched ON and OFF by this switch, and enables blur-free recording of high-speed action, such as car racing, golf swings, gymnastics, birds in flight, and much more.

OFF: Normal recording with standard shutter speeds.

ON: The electronic shutter mode is engaged for blur-free recording of high-speed action. The electronic shutter speed can be set by the Shutter Speed Selection switch on the camera.

Note: The WV-F200AE camera does not feature the electronic shutter.

98. Luminance Gain Fine Control (Y ADJUST)
This control allows fine adjustment of the video luminance signal level for matching the levels of all cameras in the system. Adjust this control only after having set the Cable Length Compensation switch ⑱ to the correct position.

99. Chroma Gain Fine Control (CHROMA ADJUST)
This control allows fine control of the chroma signal level for matching the chroma levels of all cameras in the system. Adjust this control only after having set the Cable Length Compensation switch ⑱ to the correct position.

100. Lens Iris Control (IRIS; AUTO-CLOSE/OPEN)
This control is used to set the lens iris of the auto iris servo control zoom lens.

AUTO: The iris level of the zoom lens is controlled automatically.

CLOSE/OPEN: The iris level of the zoom lens can be manually controlled by turning this control.

Note: The Iris Control Selection switch ⑫ on the lens should be set to the A (Auto) position to enable control of the lens iris from the RCU.

101. Gen-lock Input Termination Switch (75Ω/Hi-Z)
When bridging or looping through the gen-lock signal, set this switch to the Hi-Z position. At all other times, the switch should be set to the 75Ω position.

102. Auxiliary Input Termination Switch (75Ω/Hi-Z)
When bridging or looping through the auxiliary signal, set this switch to the Hi-Z position. At all other times, the switch should be set to the 75Ω position.

103. 32-pin Camera Connector (CAMERA)
Connect the 32-pin studio cable from the camera to this connector.

104. Gen-lock Input Connectors (BNC) (GEN-LOCK INPUT)
These connectors receive the gen-lock signal (black burst or composite) from the Special Effects Generator for system reference.
Two connectors are provided for either bridging or looping application.

105. Auxiliary Input Connectors (BNC) (AUX INPUT)
These connectors receive the lineview signal from the Special Effects Generator. Two connectors are provided for bridging or looping application.

106. Red, Green and Blue Output Connectors (BNC) (RGB OUTPUT)
Signals supplied from these connectors are selected by the RCU/VTR Selection Switch ㊾ on the camera adaptor as follows.

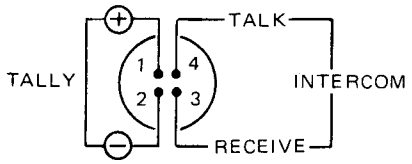
Position of RCU/ VTR Selection Switch ㊾	Red (R) Output Connector	Green (G) Output Connector	Blue (B) Output Connector	Unit to be connected
Y/C/B	Chroma (C) Signal	Luminance (Y) Signal	B signal	S-VHS VTR
Y/P_B/P_R	P_R (R-Y) Signal	Y Signal	P_B (B-Y) Signal	MII VTR
R/G/B	R Signal	G Signal	B Signal	RGB Monitor

The RCU/VTR Selection Switch ㊾ on the camera adaptor has been set to the R/G/B position at the factory and the R/G/B signals come out from these connectors.
Refer to page 28 for selecting the RCU/VTR Selection Switch ㊾.

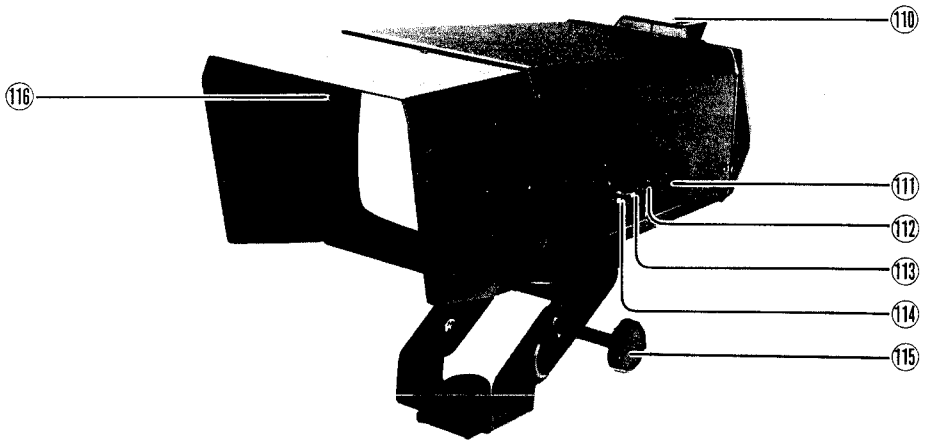
107. Video Output Connectors (BNC) (VIDEO 1, 2 OUTPUT)
These connectors supply a composite video signal to the Special Effects Generator, the Video Monitor or the VTR.

108. Sync Output Connector (BNC) (SYNC OUTPUT)
This connector supplies a negative 4Vp-p/75Ω sync signal to the Sync Input of the RGB Colour Video Monitor for synchronization.

109. Tally and Intercom Input Connector (TALLY & INTERCOM)
Connect the 4-pin cable between this connector and the Tally & Intercom output of the Special Effects Generator.



5" Electronic Viewfinder WV-VF65BE



110. Tally Light
This light only works when the camera is used in full system operation with the RCU and Special Effects Generator. The Tally light indicates that recording is in progress.

111. Contrast Control (CONTRAST)
Turn this control clockwise to increase the contrast of the picture in the viewfinder.

112. Brightness Control (BRIGHT)
Turn this control clockwise to increase the brightness of the picture in the viewfinder.

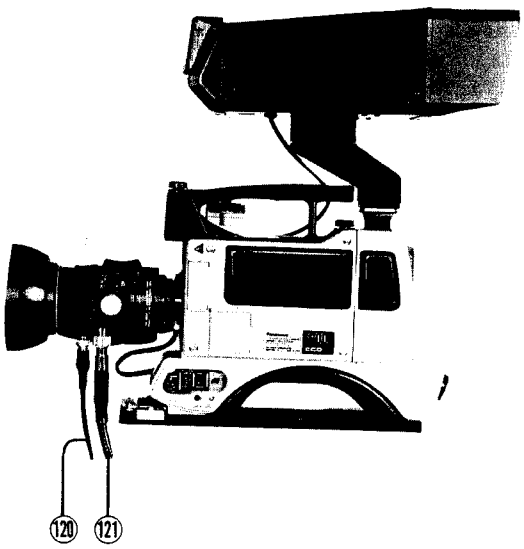
113. Tally ON/OFF Switch (TALLY ON/OFF)
This switch turns ON/OFF the Tally light (110) located on front of the viewfinder.

114. Peaking ON/OFF Switch (PEAKING ON/OFF)
Normally this switch should be set to OFF.
However, when shooting under low light conditions, setting this switch to ON, will facilitate easy focusing adjustment.

115. Viewfinder Adjustment Knob
The angle of the 5" viewfinder can be adjusted for easy and comfortable viewing.

116. Tally Indicator
When used in full system operation with the RCU and Special Effects Generator, this indicator shows the camera operator that recording is in progress and the recorded signal is being sent to the line output.

Lens Control Kit WV-LK35E



120. Cable for Zoom Remote Controller
The zoom operation of the Auto Iris Servo Control Zoom Lens can be remotely controlled for studio operation by connecting the Zoom Remote Controller to the lens.

121. Flexible Cable for Focus Controller
The focus of the Auto Iris Servo Control ZoomLens can be remotely controlled for studio operation by installing the Focusing Gear and Focus Controller on the lens.

INSTALLATION FOR ENG/EFP OPERATION

A. Colour Camera WV-F200AE

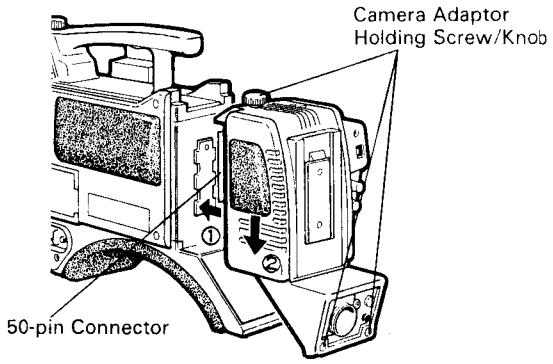
The colour Camera WV-F200AE is packed into a carrying case. For safe transportation, the Tripod Mounting Adaptor is not mounted on the camera and packed separately into the carrying case. The optional Battery Pack WV-PS33/WV-PS60 and AC Adaptor/Charger WV-PS31 are required for the ENG/EFP operation.
For assembling the kit, follow steps 5 to 7.

B. Colour Camera WV-F200AHE

The colour camera WV-F200AHE includes only the camera head and a camera adaptor. For ENG/EFP application, the optional 1.5" Electronic Viewfinder WV-VF38AE, 12X Servo Control Zoom Lens J12X-10BKRSM, Microphone WV-MC35, Battery Pack WV-PS60/WV-PS33, AC Adaptor/Charger WV-PS31 and Tripod Mounting Adaptor WV-Q47 are required. For assembling, follow step 1 to 7.

1. Mounting the Camera Adaptor

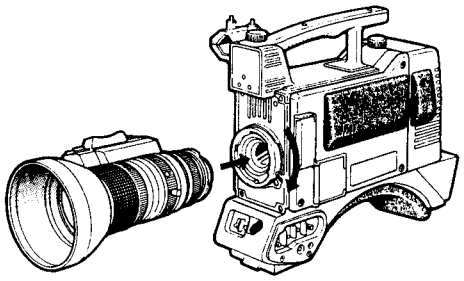
Connect the 50-pin connector on the camera head and the camera adaptor, and press down the camera adaptor until it stops. Then tighten the three Camera Adaptor Holding Screws/Knobs firmly, and make sure the adaptor is securely fixed to the camera.
(The camera adaptor has been mounted on the camera head at the factory.)



2. Mounting the Lens J12X10BKRSM

Remove the body cap from the camera by turning the lens holding ring/knob counter-clockwise. Attach the 12:1 Auto Iris Servo Control Zoom Lens J12X10BKRSM into the lens mount hole, and turn the lens holding ring/knob clockwise to secure the lens to the camera body. After having checked the lens is mounted securely, connect the lens cable to the 12-pin lens connector on the camera.

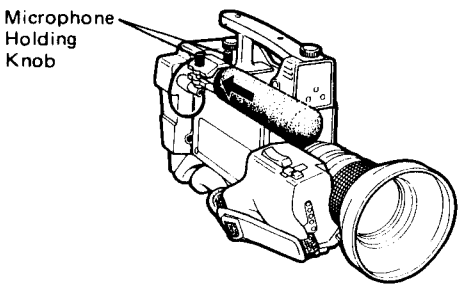
Note: If an Auto Iris Servo Control Zoom Lens with an 8-pin lens cable is used, the optional Lens Connector Conversion Cable WV-LC10 is required.

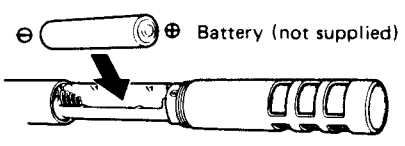


3. Mounting the Microphone WV-MC35

Loosen the two microphone holding knobs, slide the microphone into the microphone holder, and turn the knobs to secure the microphone to the camera.
Connect the plug of the microphone to the microphone connector on the camera.

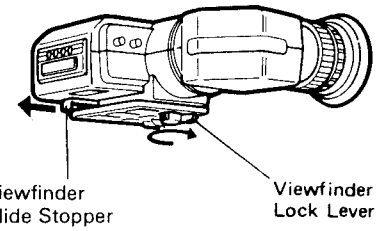
Note: The microphone WV-MC35 is powered by a dry battery (size R6P/SUM-3/AA). The battery is replaced by turning the microphone sleeve and sliding open the battery compartment. When replacing the battery, observe the correct battery polarity (+ and −).
The battery life is approx. 5000 hours in continuous use. However, if the microphone is not to be used for more than two weeks, it is recommended to remove the battery from the microphone.

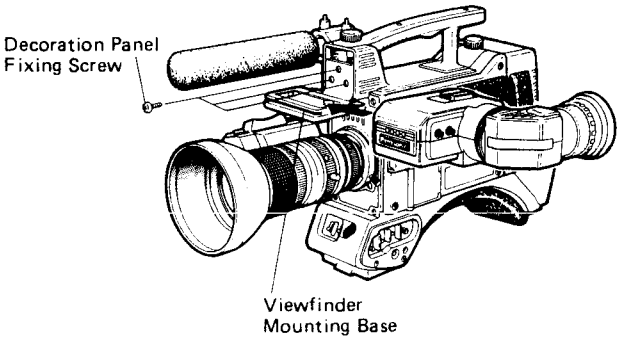




4. Mounting the 1.5" Electronic Viewfinder WV-VF38AE

- Unlock the viewfinder lock lever on the WV-VF38AE. While pulling the viewfinder slide stopper, remove the viewfinder mounting base by sliding it out from the viewfinder.
- Remove the three screws from the front decoration panel and remove the panel.
  Install the viewfinder mounting base in the place of the front decoration panel with the three screws just removed.
  Mount the viewfinder on the viewfinder mounting base by sliding it onto the base.
  Securely lock the viewfinder in place by the viewfinder lock lever.
  Connect the viewfinder connector.



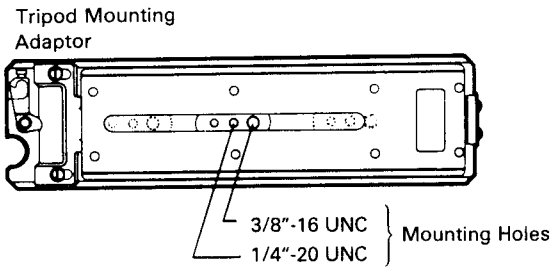


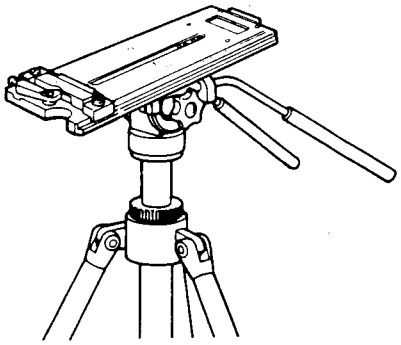
5. Mounting the Battery Pack of AC Adaptor/Charger

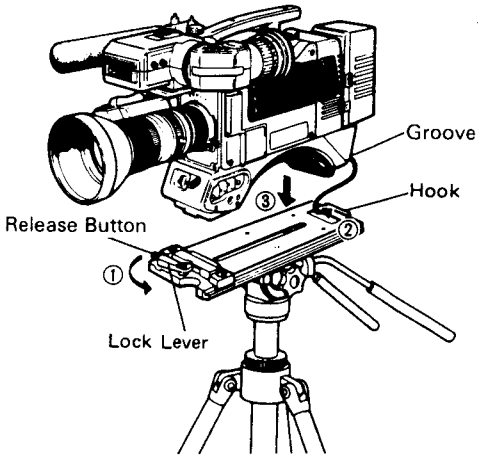
Refer to "Installation of the Battery Pack" on page 23 and "Installation of the AC Adaptor/Charger WV-PS31" on page 24.

6. Mounting the Tripod Mounting Adaptor

Mount the Tripod Mounting Adaptor on the tripod, by matching one of the mounting holes (1/4"-20 UNC or 3/8"- 16 UNC) on the adaptor with the tripod mounting screw, and securing the adaptor with the mounting screw on the tripod.

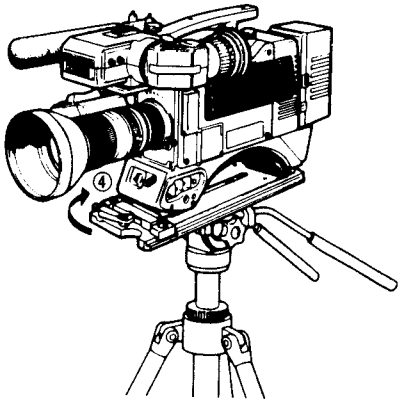






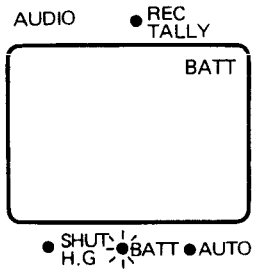
7. Mounting the Camera on the Tripod Mounting Adaptor

- While pressing the release button on the lock lever of the Tripod Mounting Adaptor, unlock the lock lever by turning it counter-clockwise as shown in the illustration.
  Place the camera on the Tripod Mounting Adaptor and make sure the groove at the rear of the camera is properly engaged with the hook at the rear of the Tripod Mounting Adaptor.
- Turn the lock lever of the Tripod Mounting Adaptor clockwise, as shown in the illustration. Tighten the camera securely in the adaptor and make sure it is in its backmost position in the adaptor.

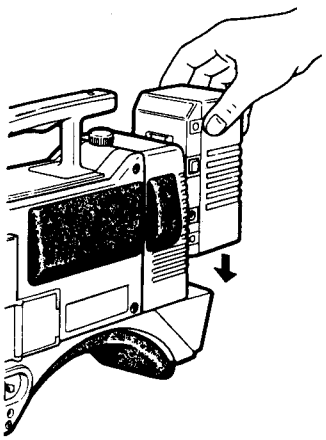


INSTALLATION OF BATTERY PACK

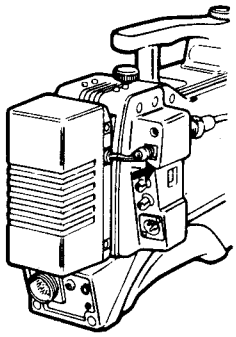
When the Battery Pack WV-PS60 or WV-PS33 is used with the ENG/EFP colour camera, this installation procedure should be followed. Be sure the battery to be mounted has been newly recharged before proceeding with the installation.
(The following installation procedure depicts mounting of the Battery Pack WV-PS60. The WV-PS33 is installed in exactly the same manner.)
When "BATT" is displayed in the viewfinder and the Battery Warning indicator in the viewfinder blinks, the battery pack should be replaced and/or recharged. Please note that the battery pack will supply power for **only a few minutes** after the indicator has started to blink in the viewfinder.



1. Install the Battery Pack on the rear of the camera by matching the recesses in the Battery Pack with the rails on the camera and sliding it down.

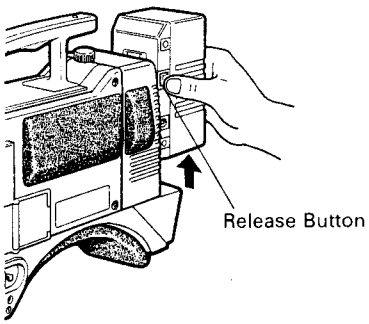


2. Connect the battery cord to the battery connector.



Note: The WV-PS60 will supply power for one hour, while the WV-PS33 can supply the camera with power for two hours. Please note, however, that the Battery Pack gradually over time will discharge. Thus, it could be that the Battery Pack has been fully discharged if the camera has not been used for a long time.
Make sure the Battery Pack is fully charged prior to recording; especially prior to recordings where you cannot afford to run out of power.

3. When replacing the Battery Pack, disconnect the battery cord and remove the Battery Pack by sliding it up while pressing the Battery Pack Release button.



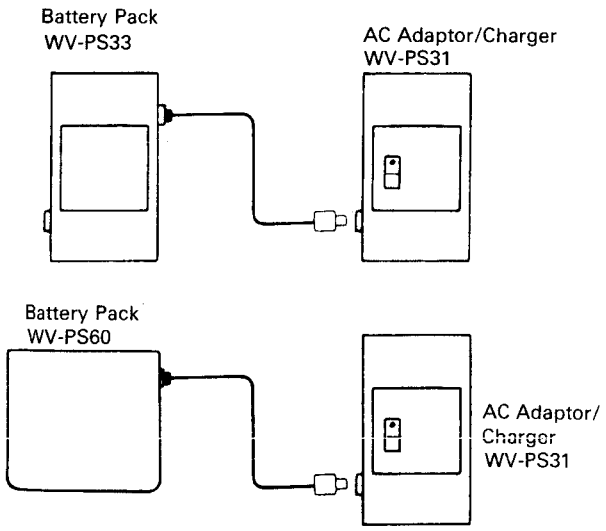
CHARGING THE BATTERY PACK (WV-PS33E AND WV-PS60E)

The Battery Pack can be charged, using the Charger, as follows.

Battery Pack	Battery Charger	Approx. Charging Time (Full Charge)
WV-PS33	AC Adaptor/Charger WV-PS31	4 hours in quick mode 6 Hours in slow mode
	Charger WV-BC30	15 hours
WV-PS60	AC Adaptor/Charger WV-PS31	2 hours in quick mode 3 hours in slow mode
	Charger DE-1232	15 hours

Note:
1) A newly purchased battery should always be fully charged prior to usage.
2) Remove the Battery Pack from the camera while charging it.

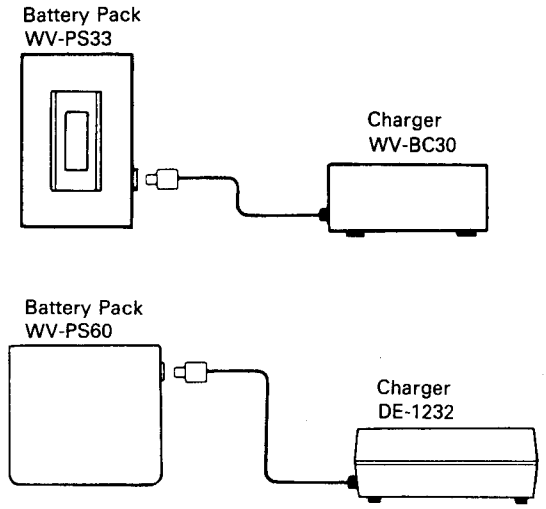
Quick Charging with the WV-PS31



Note:

1) Quick charging is completed after approximately 4 hours for the WV-PS33 and 2 hours for the WV-PS60. The Charge indicator on the Charger will change from red to green to indicate that the Charger has changed to the slow charge mode.
2) In order to make full charging and to prolong the service life of the Battery Pack as much as possible, slow charging of 6 hours for the WV-PS33 and 3 hours for the WV-PS60 is recommended. Quick charging should only be used in emergencies.

Slow Charging with the WV-BC30 and DE-1232

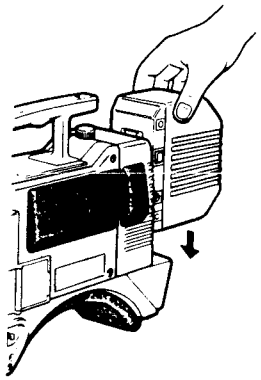


Note: In order to prolong the service life of the Battery Pack, when using the Charger, charge the Battery for approximately 15 hours. DO NOT charge for more than 24 hours as this would quickly wear out the Battery Pack.

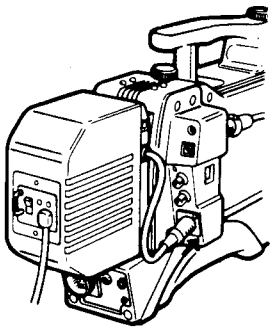
INSTALLATION OF THE AC ADAPTOR/CHARGER WV-PS31

When the AC Adaptor/Charger WV-PS31 is used with the ENG/EFP Colour Camera as an AC Adaptor, this installation procedure should be followed:

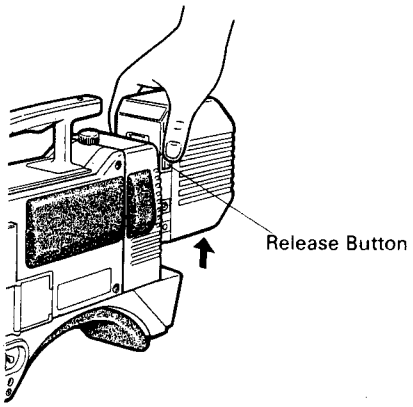
1. Install the AC Adaptor/Charger on the rear of the camera by matching the recesses in the AC Adaptor/Charger with the rails on the camera and sliding it down.



2. Connect the 4-pin cable to the 4-pin external DC input connector on the camera.



3. When removing the AC Adaptor/Charger, disconnect the 4- pin cable and remove the AC Adaptor/Charger by sliding it up while pressing the Release button.



INSTALLATION FOR STUDIO OPERATION

A. Conversion from an ENG Camera

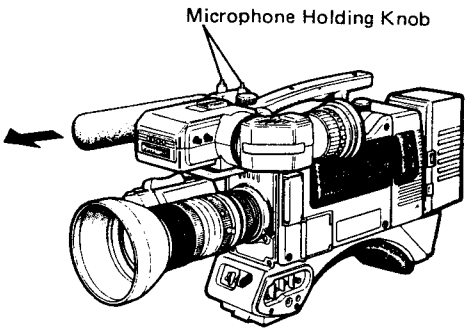
The ENG Camera can be made into a Studio configuration, by fitting the camera with the 5" Electronic Viewfinder WV-VF65B and connecting it to the Remote Control Unit WV-RC36 and Lens Control Kit WV-LK35 for the J12X10BKRSM Lens. This conversion is realized by following steps 1 to 8 below.

B. Studio Configuration

The Studio Configuration is made up of the Colour Camera WV-F200AHE, the 5" Electronic Viewfinder WV-VF65B, 12X Servo Control Zoom Lens J12X10BKRSM, the Lens Control Kit WV-LK35 for the zoom lens, the Tripod Mounting Adaptor WV-Q47 and Remote Control Unit (RCU) WV-RC36. To set up the system, follow steps 4 to 8 below.

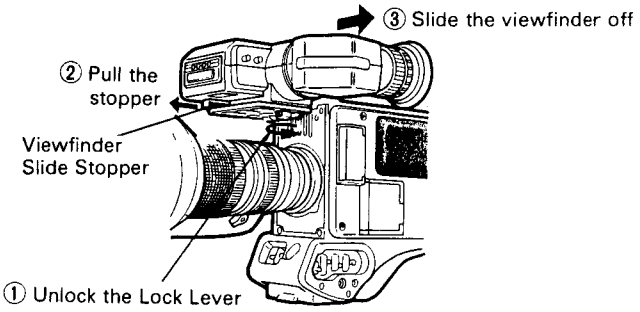
1. Remove the Microphone

Disconnect the connector of the microphone and remove the microphone by loosening the two microphone holding knobs.



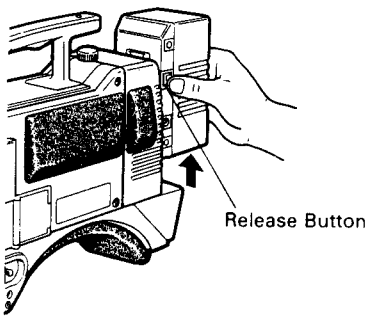
2. Remove the 1.5" Electronic Viewfinder

Disconnect the 1.5" viewfinder connector and then turn the viewfinder lock lever counter-clockwise to unlock the viewfinder. While pulling the viewfinder slide stopper forward, remove the viewfinder by sliding it out from the viewfinder mounting base.



3. Remove the Battery Pack (WV-PS33/60) or the AC Adaptor/Charger (WV-PS31)

Disconnect the battery cord or the 4-pin AC Adaptor/Charger cable from the camera. While pressing the release button, remove the Battery Pack or the AC Adaptor/Charger from the camera by sliding it up.

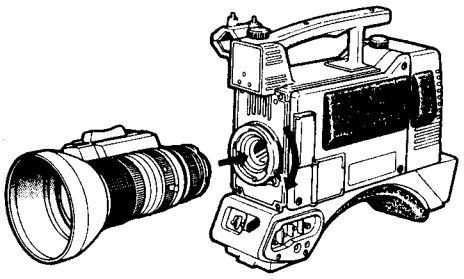


4. Mount the Zoom Lens J12X10BKRSM

Remove the body cap from the camera by turning the lens holding ring/knob counter-clockwise. Attach the 12:1 Auto Iris Servo Control Zoom Lens J12X10BKRSM into the lens mount hole and turn the lens holding ring/knob clockwise to secure the lens. Check that the lens is securely attached to the camera body.

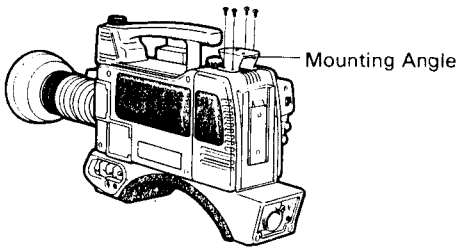
Connect the lens cable to the 12-pin lens connector on the camera.

Note: If an Auto Iris Servo Control Zoom Lens with 8-pin lens cable is used, the optional Lens Connector Conversion Cable WV-LC10 is required.

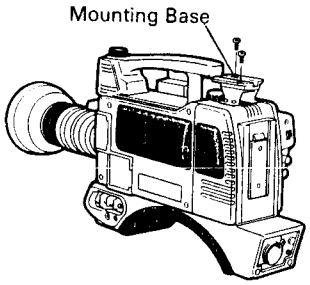


5. Mounting the 5" Electronic Viewfinder

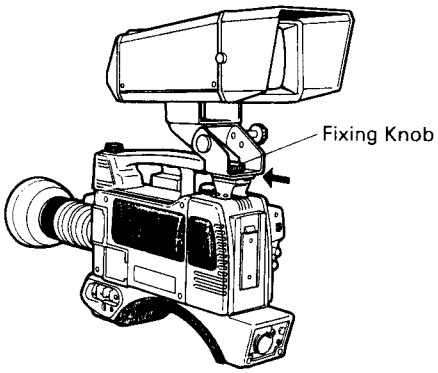
- Remove the four screws from the top of the camera. Attach the Viewfinder Mounting Angle (supplied) on the camera using the removed screws.



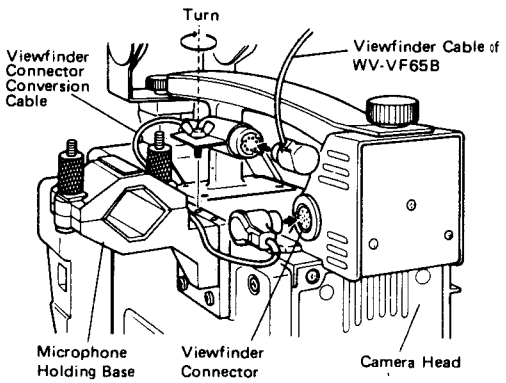
- Attach the round viewfinder mounting base (supplied) to the mounting angle using two screws.



- Slide the viewfinder adjusting angle into the mounting base and tighten the fixing knob to secure the viewfinder. Connect the viewfinder cable.

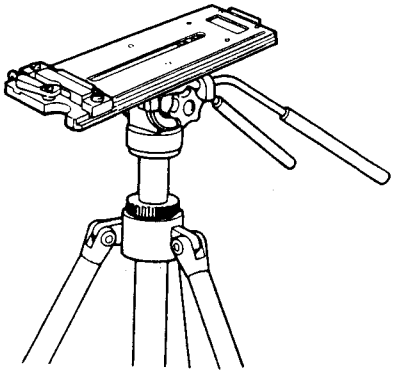


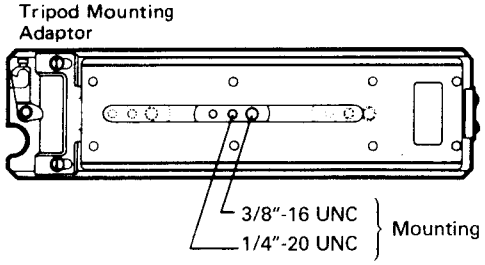
Note: When connecting the viewfinder cable of the WV-VF65B to the viewfinder connector on the camera, use the viewfinder connector conversion cable (supplied) in between.
After connection is completed, attach the conversion cable to the microphone holding base by turning the wing screw.



6. Mounting the Tripod Mounting Adaptor

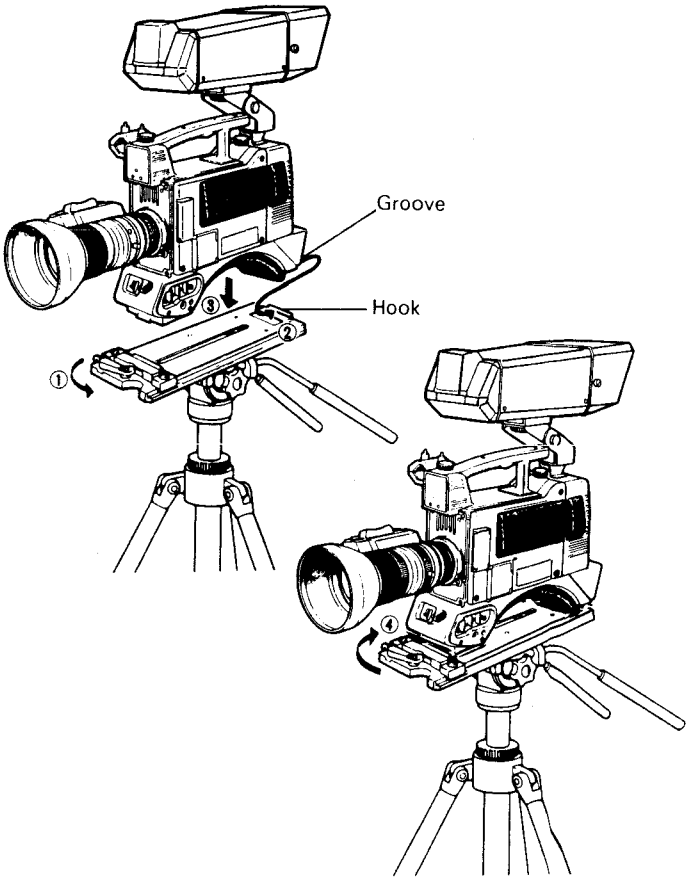
Mount the Tripod Mounting Adaptor on the tripod, by matching one of the mounting holes (1/4"-20 UNC or 3/8"- 16 UNC) on the adaptor with the tripod mounting screw, and securing the adaptor with the mounting screw on the tripod.





7. Mounting the Camera on the Tripod Mounting Adaptor

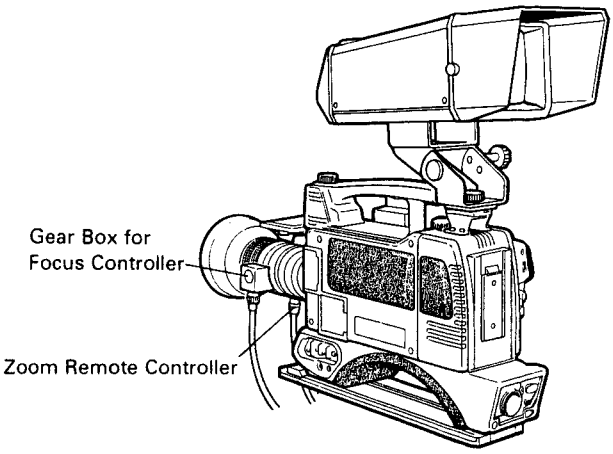
- While pressing the release button on the lock lever of the Tripod Mounting Adaptor, unlock the lock lever by turning it counter-clockwise as shown in the illustration.
  Place the camera on the Tripod Mounting Adaptor and make sure the groove at the rear of the camera is properly engaged with the hook at the rear of the Tripod Mounting Adaptor.

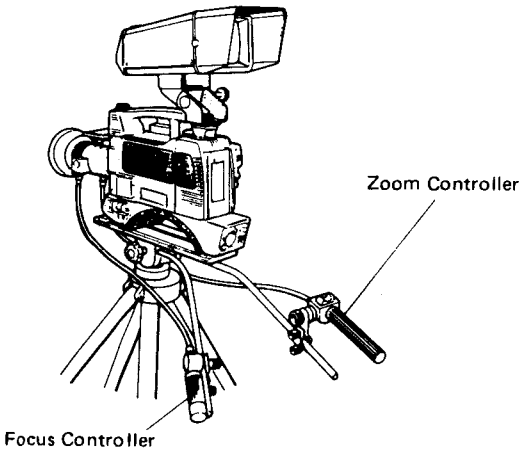


- Turn the lock lever of the Tripod Mounting Adaptor clockwise, as shown in the illustration. Tighten the camera securely in the adaptor and make sure it is in its backmost position in the adaptor.

8. Mounting the Lens Control Kit WV-LK35 (only for the Zoom Lens J12X10BKRSM)

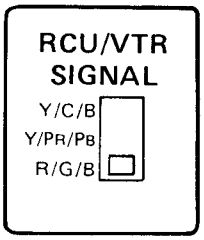
Unscrew the cap from the zoom remote controller connector on the lens and connect the Zoom Remote Controller. Remove the Zoom Lever from the zoom lens by turning it counter-clockwise. Install the gear box for focusing control on the lens and connect the flexible control cable from the Focus Controller to the gear box.
Install the Zoom Controller on the right tripod arm and the Focus Controller on the left tripod arm.





SETTING THE RCU/VTR SIGNAL SELECTION SWITCH

The RCU/VTR Signal Selection Switch ㊾ on the camera adaptor selects the video output signal supplied from the VTR/RCU connector ⑨ on the camera for the ENG application and from the Red, Green and Blue Output Connectors ⑯ on the remote control unit (RCU) for the RCU/studio application. The switch has been set to the R/G/B position at the factory.



1. ENG Application

The switch ㊾ should be set according to the VTR that the camera is connected to.

Portable VTR Used	**RCU/VTR Signal Selection Switch ㊾**
1/2" or 3/4" portable VTR with 10-pin camera connector (such as AG-6400)	R/G/B
3/4" portable VTR with 14-pin camera connector	R/G/B
MII portable VTR (such as AU-500)	Y/PB/PR

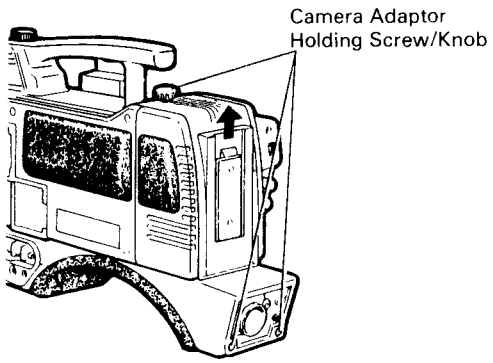
2. RCU/Studio Application

The switch ㊾ should be set according to the signals required at the Red, Green and Blue Output Connectors ⑯ on the RCU.

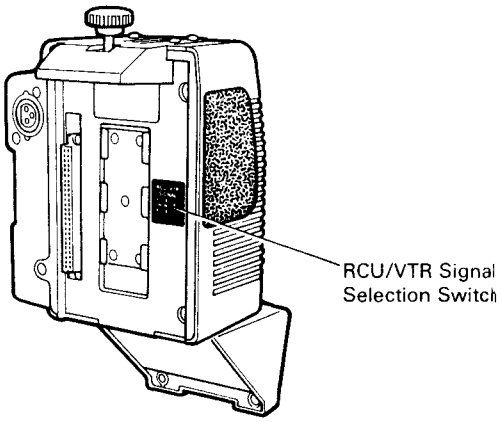
Signal required at Output Connector ⑯	**RCU/VTR Signal Selection Switch ㊾**	**Signals at Output Connectors ⑯**		
		Red (R)	Green (G)	Blue (B)
Red, green and blue signals for chroma keying or RGB colour video monitor	R/G/B	R signal	G signal	B signal
Luminance (Y), B-Y (PB) and R-Y (PR) component signals for MII VTR	Y/PB/PR	PR (R-Y) signal	Y signal	PB (B-Y) signal
Luminance (Y) and chrominance (C) component signal for S-VHS VTR	Y/C/B	C signal	Y signal	B signal

3. Setting the RCU/VTR Signal Selection Switch

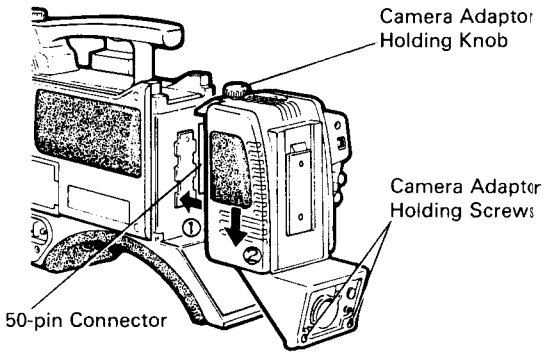
1. Remove the Camera Adaptor
   Loosen the Camera Adaptor Holding Screws and Knob and remove the Camera Adaptor by pressing it up.



2. Setting the RCU/VTR Signal Selection Switch
   Set the RCU/VTR Selection Switch on the Camera Adaptor to an appropriate position referring to the table on page 28.



3. Mounting the Camera Adaptor
   Connect the 50-pin connector on the camera head and the camera adaptor, and press down the camera adaptor until it stops. Tighten the Camera Adaptor Holding Knob and then two Camera Adaptor Holding Screws. Make sure the adaptor is securely fixed to the camera.

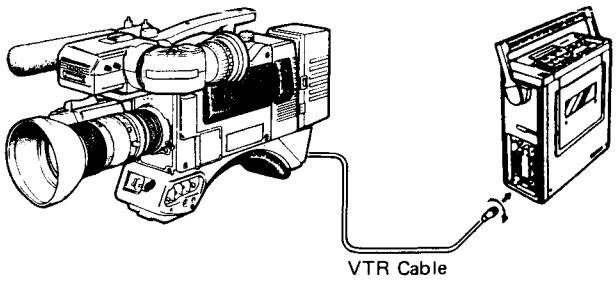


CONNECTIONS FOR ENG/EFP APPLICATIONS

CAUTION: Keep the Power switches of all units in the OFF positions during connections.

1. ENG Application

- Connect the VTR cable between the camera and the Panasonic portable colour VTR (The standard VTR cable length is 3 m (10 ft).)
  Portable VTR with 10-pin camera connector, such as AG-6400:
  VTR cable WV-CA32/10 (32P-10P cable)
  Portable VTR with 14-pin camera connector:
  VTR cable WV-CA32A/14 (32P-14P cable)
  MII portable VTR, such as AU-500:
  VTR cable WV-CA32A/26 (32P-26P cable)

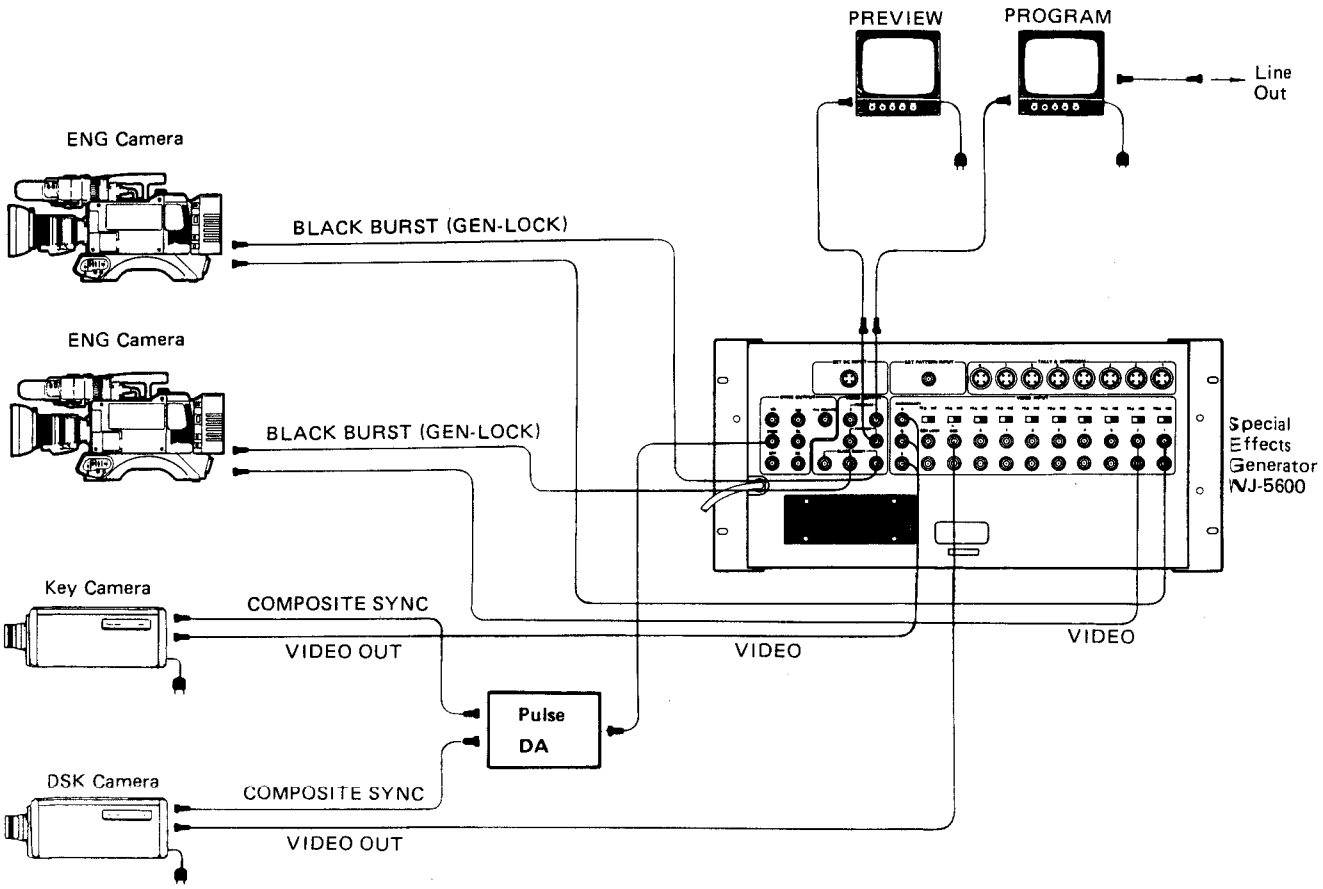


2. Gen-Lock EFP Application

- Connect the coaxial cable for the gen-lock signal between the Gen-lock Input connector ⑬ (BNC-type) on the camera and the black burst output connector on the production system, such as the Special Effects Generator.
- Connect the coaxial cable for the video output signal between the Video Output connector ⑭ (BNC type) on the camera and the video input connector on the production system.

Note:

1. The following signal outputs can be used as gen-lock signals: WJ-5600, WJ-5500E/N, WJ-4600: Black Burst output.
2. The Subcarrier Phase Coarse switch ㊳ and Fine control ㉟ as well as the Horizontal Phase control ㊴ on the camera should be set to match the other cameras in the system. Refer to page 36 for details.
3. Refer to the operating instructions accompanying the Special Effects Generator, such as WJ-5600, WJ-5500E/N and WJ-4600, for further details.

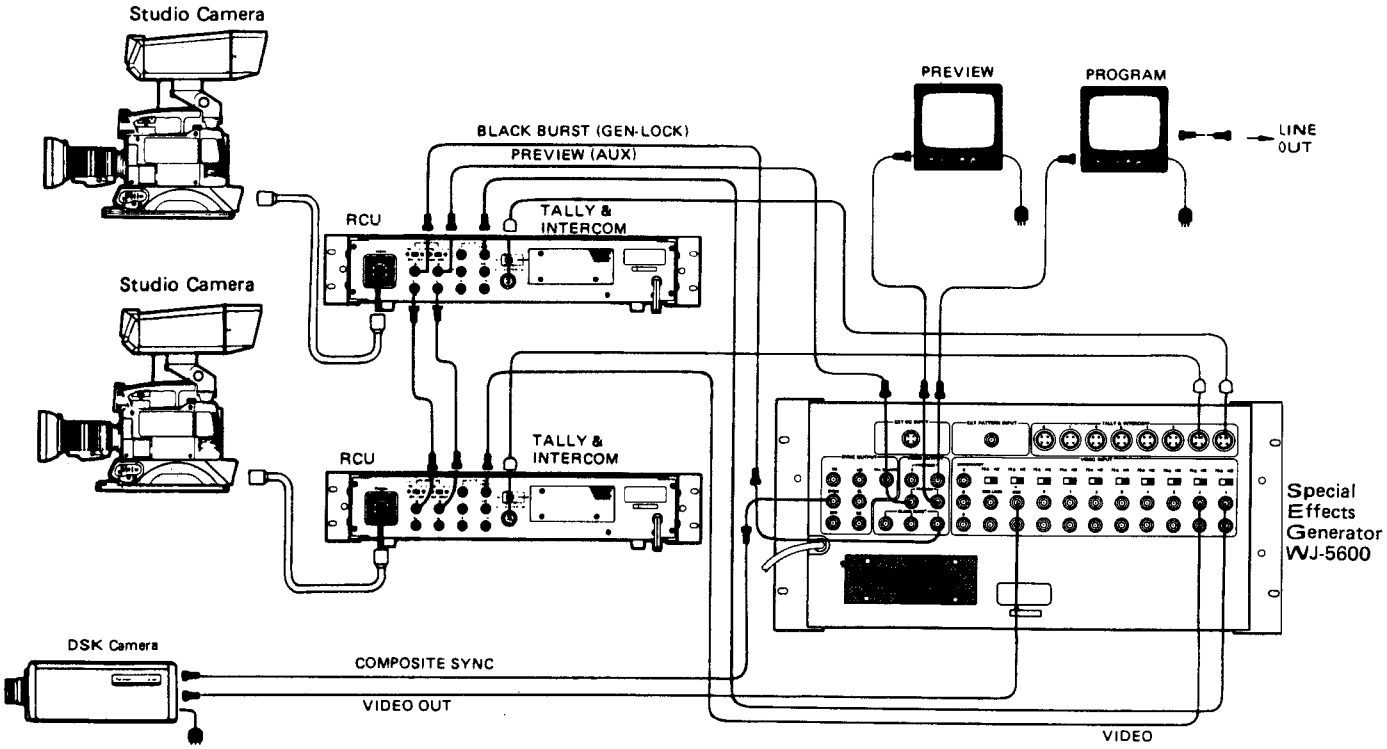


CONNECTIONS FOR STUDIO APPLICATION

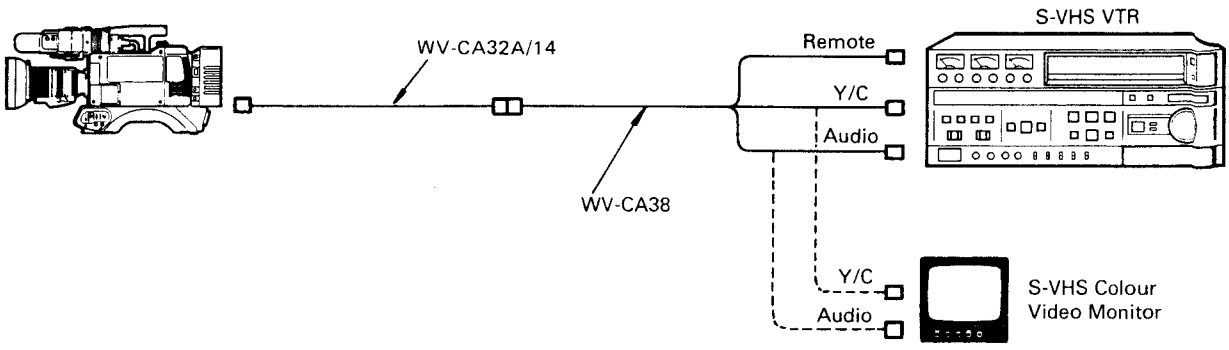
- Connect the 32-pin studio cable between the camera and the Remote Control Unit (RCU).
- Connect the coaxial cable for the video output signal between the Video Output connector ⑰ on the RCU and the video input on the production unit, such as the Special Effects Generator.
- Connect the coaxial cable for the gen-lock signal between the black burst output on the production system and the Gen-lock Input connector ⑭ on the RCU. (The signal may be bridged or looped through to another RCU.)
- Connect the coaxial cable for the lineview signal between the effect output connector on the production system and the Auxiliary Input connector ⑮ on the RCU. (The signal may be bridged or looped through to another RCU.)

Note:

1. The Tally light and intercom between the camera, RCU and Special Effects Generator will function only when the 4-pin cable for the Tally light and intercom is connected between the RCU and Special Effects Generator.
2. The 32-pin studio cable can be extended up to a maximum of 300 m (approximately 1000 ft). When extending the cable, be sure to set the Cable Length Compensation switch ⑱ to the position matching the extension length.
3. The Subcarrier Phase Coarse and Fine controls ⑭ and the Horizontal Phase control ⑬ on the RCU should be set to match other cameras in the system. Refer to page 38 for details.



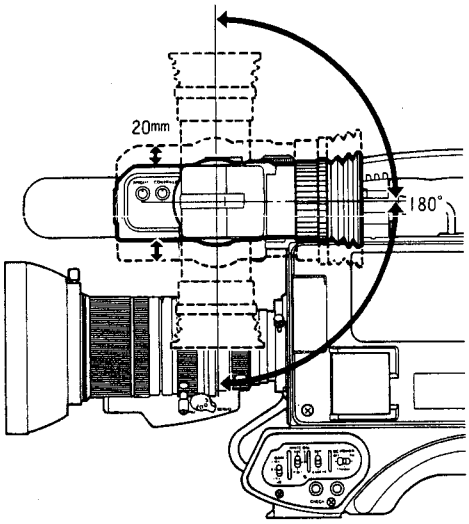
Note: When the WV-F200AE series colour camera is connected to the desk-top type S-VHS VTR such as AG-7500 or directly to the video monitor for S-VHS format, the S-VHS cable WV-CA38 is required in addition to the VTR cable WV-CA32A/14.

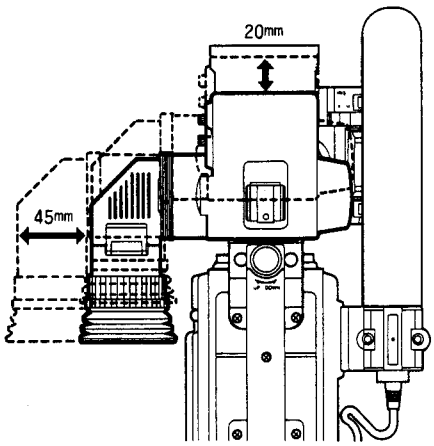


EASE OF OPERATION

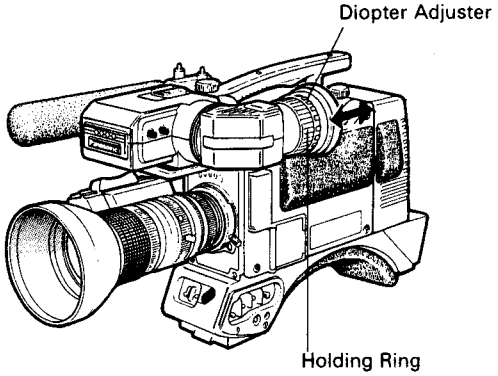
For easy and comfortable operation, the angle and position of the viewfinder can be freely adjusted.

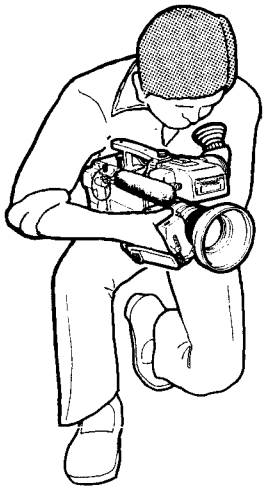
1. Angle and Position of the 1.5" Electronic Viewfinder
   The viewfinder can be tilted approx. 90° from horizontal and it can be adjusted up and down by 20 mm (approx. 13/16"). Furthermore, it can be slid 45 mm (approx. 1-3/4") laterally and 20 mm (approx. 13/16") back and forth.



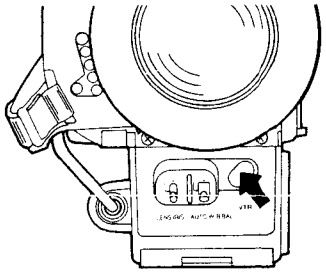


2. Diopter Adjustment
   In order to adopt the camera to the eye sight of the camera operator, the camera features a diopter adjuster. When adjusting, loosen the holding ring, make the necessary adjustment, and then lock the ring again.



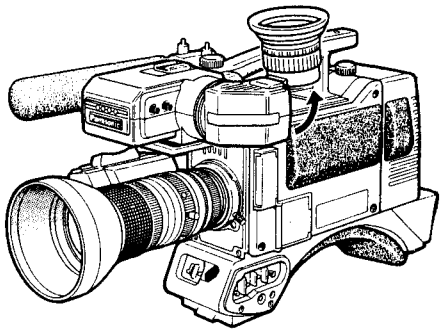


On the camera body, there is a VTR Start/Stop button, convenient for low-angle shooting.



The viewfinder can be adjusted up and down by 20 mm (approx. 13/16") by rotating this knob.

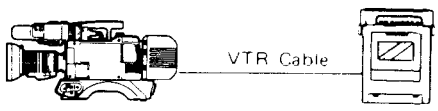
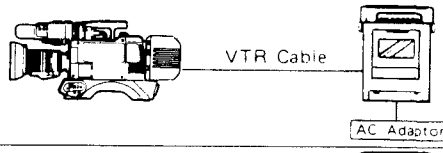
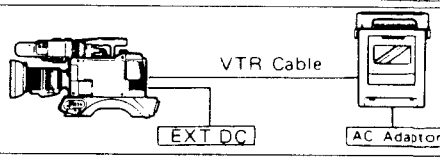
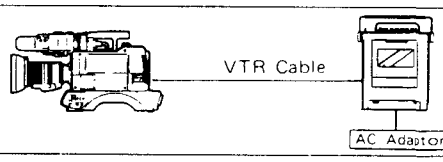
3. Eye Cap
   For added convenience, the eye cap can be flipped open, when watching the playback picture from the VTR.



OPERATING PROCEDURE FOR ENG/EFP APPLICATION

1. ENG Application

1) Make all required connections.
2) Remove the Lens Cap.
3) Select the power source according to the table below.

Case No	Camera Power	Portable VTR Power	Power Selection Switch ㊸	Connections
1	Battery Pack	Internal Battery	BATT/EXT DC	
2	AC Adaptor	Internal Battery or AC Adaptor	BATT/EXT DC	
3	External DC	Internal Battery or AC Adaptor	BATT/EXT DC	
4	Supplied from VTR	AC Adaptor	VTR/RCU	

Note:

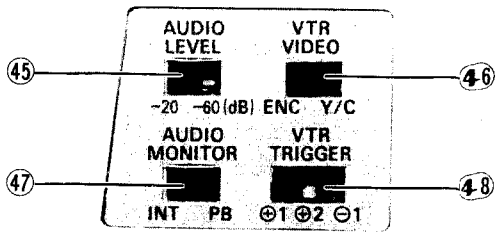
1. The cable distance between the camera and the VTR can be extended up to 10 m (33 ft) in Case 4 and up to 30 m (100 ft) in Cases 1, 2 and 3.
2. It is not recommended to supply camera power from the built-in battery in the portable VTR since recording time would be much too short in this case.
3. In Case 4, the AC Adaptor should have sufficient capacity to power both the camera and the VTR.

4) Set the switches of the camera according to the VTR it is connected to.

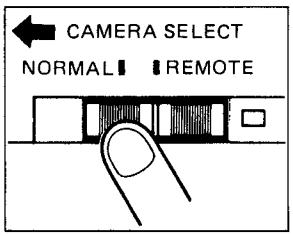
Case No.	Portable VTR Used	VTR Video Output Selection Switch ㊻	VTR Compatibility Switch ㊽	Audio Level Selection Switch ㊺	Audio Monitor Selection Switch ㊼	RCU/VTR Signal Selection Switch ㊾
1	1/2" or 3/4" portable VTR with 10-pin camera connector (such as AG-6400)	ENC (Note: 1)	⊕ 1 (Note: 2)	−20 dB	INT	R/G/B
2	3/4" portable VTR with 14-pin camera connector	ENC (Note: 1)	⊕ 2	−60 dB	PB	R/G/B
3	MII portable VTR (such as AU-500)	ENC	⊕ 2	−60 dB	PB	Y/PB/PR

Note:

1. IF the VTR Video Output Selection switch ㊻ is set to the Y/C position, colour recording is not possible.
2. If a VTR of other manufacture than Panasonic pauses while it should be recording, and vice versa, set the VTR Compatibility switch ㊽ to the ⊖ 1 position.
3. Some VTRs may not operate properly even though they are correctly connected to this camera. Please contact your dealer for detailed information.
4. The RCU/VTR Signal Selection Switch ㊾ has been set to the R/G/B position at the factory.
   Refer to page 28 for setting the switch.



5) Turn the camera and the portable VTR ON and set the portable VTR to the RECORD mode.
(a) For portable VTRs with a Camera Select switch, such as Panasonic VTR AG-6400:
- Set the Camera Select switch on the VTR to NORMAL.

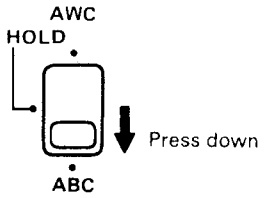


(b) For other portable VTRs without a Camera Select switch:
- Press the Recording and Play button together.

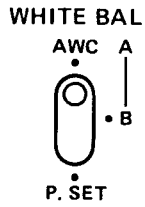
6) Select the proper filter according to the colour temperature at the scene, using the Filter Wheel ㉙ while referring to the Table on page 43.
7) Set the switches as follows:

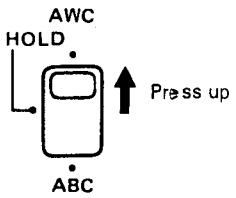
Switches	Positions
High Gain Selection switch ㉔	0 dB
Colour Bar/Camera Selection switch ㉘	CAMERA
Iris Control Selection switch ㊷ on lens	A (Auto)
Lens Iris Selection switch ⑦	NOR (Normal)
Power switch ㉗	ON

8) Set the black balance as follows:
Set the Auto White/Auto Black Set switch ⑥ to the ABC position momentarily by pressing it down.
The lens iris is automatically closed and the black balance is set automatically in approximately 5 seconds. When the black balance has been set, the lens iris automatically returns to its previous position. The Auto Warning indicator blinks while the black balance is being set and it goes off when the black balance has been correctly set. While the black balance is being set, "ABC" also blinks in the viewfinder screen, and "ABC OK"appears when the setting is completed. After a few seconds "ABC OK" disappears from the screen.
If the Auto Warning indicator remains lit and "ABC NG" appears in the viewfinder screen, the black balance adjustment should be carried out once more. Refer to "Setting the Black Balance" on page 41 for details.



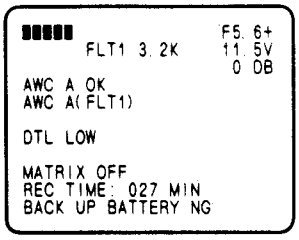
9) Set the white balance as follows:
Set the White Balance Selection switch ㉓ to the AWC A or AWC B position.
While aiming the camera at a white object, e.g. white paper or a white wall, set the Auto White/Auto Black Set switch ⑥ to the AWC position momentarily by pressing it up. The white balance is automatically set. When the white balance has been set, the blinking Auto Warning indicator in the viewfinder screen goes out and the blinking "AWC A" or "AWC B" turns into "AWC A OK" or "AWC B OK", respectively. This indication disappears after a few seconds.
If the Auto Warning indicator remains lit and "AWC A NG" or "AWC B NG" appears in the viewfinder screen, the white balance adjustment should be carried out once more. However, before proceeding with the adjustment, make sure the Filter Wheel ㉙ is set correctly. Refer to "Setting the White Balance" on page 42 for details.



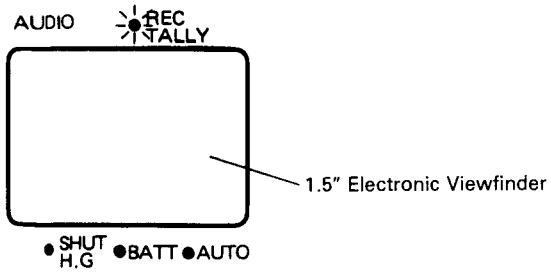


10) Confirm the flange-back adjustment of the lens as follows:
- Aim the camera at a dark object more than 2 m (6 ft) from the camera.
- Zoom in (from wide-angle to tele) with the Servo Zoom control ㊸ and adjust the lens focus with the Focus Ring ㊼.
- Zoom out (from tele to wide-angle) and confirm that the picture is in focus. If not, the flange-back of the lens should be adjusted according to the instructions in "Flange-back Adjustment" on page 40.

11) The system condition may be confirmed by pressing the Check button ㉕ while a normal picture is being viewed. Refer to "Character Display" on page 44 for details.



12) Zoom in/out with the Servo Zoom control ㊸ or Zoom Ring/Lever ㊾ until the desired composition is achieved.
13) Turn the Focus Ring ㊼ until the object is in sharp focus by watching the picture in the viewfinder.
Close-up (macro) shooting: After setting the Servo/Manual Zoom Selection switch ㊿ to the MANU (Manual) position, turn the Zoom Ring/Lever ㊾ to the macro range while depressing the Macro button ㊽. In the macro mode, objects as close as 10 mm (3/8") from the lens surface can be recorded.
14) Press the VTR Start/Stop button ⑤ on the camera or ㉕ on the lens.
The Recording/Tally indicator in the viewfinder, on the rear of the camera and the Tally light on the front of the viewfinder light while recording is in progress.



15) Press the VTR Start/Stop button ⑤ or ㉕ to stop recording when this is desired. The Recording/Tally indicator and the Tally light go out.
To resume recording, simply press the VTR Start/Stop button ⑤ or ㉕ again.

16) After recording, you may review the picture in the viewfinder. Press the Stop button on the recorder, rewind the tape to the beginning of the recording and start playback.
The played back picture can be observed on the viewfinder screen and the sound can be monitored in one of the following manners:

VTR Used	Playback Picture	Playback Sound
3/4" VTR with 14-pin camera connector MII VTR ...(AU-500)	Can be confirmed by pressing the Return Video button ㊹ on the lens.	Can be monitored through the Audio Monitor jack ⑯.
3/4" VTR with 10-pin camera connector 1/2" VHS VTR ...(AG-6400)	Can be confirmed by automatic switching.	Can be monitored through Audio Output on VTR.

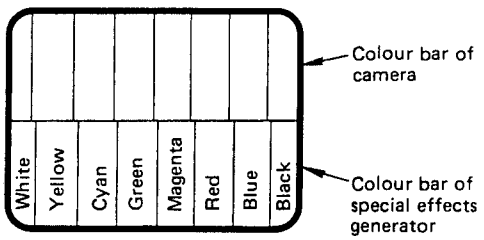
2. Gen-lock EFP Application

1) Make all required connections.
Select the power source, either the Battery Pack PS-60/WV-PS33 or AC Adaptor/Charger WV-PS31.
Battery Pack: Limited time operation
AC Adaptor: Unlimited time operation

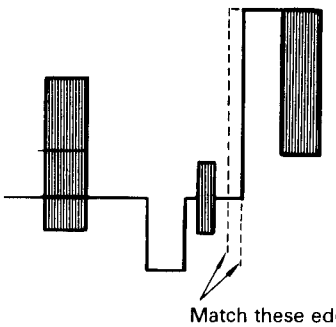
2) Set the switches as follows:

Switches	Positions
High Gain Selection switch ㉔	0 dB
Colour Bar/Camera Selection switch ㉘	BAR
Iris Control Selection switch ㊷ on lens	A (Auto)
Lens Iris Selection switch ⑦	NOR (Normal)
Power Selection switch ㊶	BATT/EXT DC
Power switch ㉗	ON

3) Adjust the horizontal phase of the camera as follows:
- Set the switches and controls on the Special Effects Generator so that the split colour bar picture is observed on the program monitor. Refer to the operating instructions accompanying the Special Effects Generator.

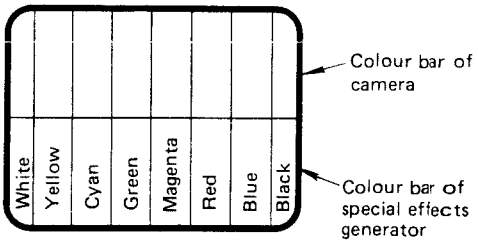


- Connect an oscilloscope to the Program Output connector of the Special Effects Generator and check the horizontal blanking period of the Program Output signal.
- Adjust the Horizontal Phase control ㊴ so that the phase of the horizontal blanking of the colour bar signal for the camera matches that for the Special Effects Generator.

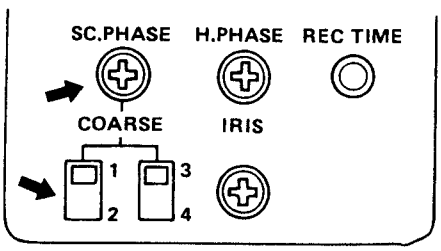


- The horizontal phase of the camera can be roughly adjusted by observing the split colour bar picture of the program monitor after all switches and controls have been correctly set. Adjust the Horizontal Phase control ㊴ so that the edges of the colour bar of the camera and Special Effects Generator roughly match each other.

Note: The horizontal phase as well as the subcarrier phase explained in the next paragraph should be readjusted if the connections or coaxial cable length is changed in the system.



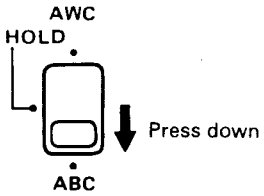
4) Adjust the subcarrier phase of the camera as follows:
- Set the switches and controls on the Special Effects Generator so that the split colour bar picture is observed on the program monitor. Refer to the operating instructions accompanying the Special Effects Generator for details.
- Adjust the Subcarrier Phase Coarse switch ㊱ and Fine Control ㊲ so that the colours of the colour bars from the camera are similar to the colours of the colour bars generated by the Special Effects Generator.
- For precise adjustment, the use of a vectorscope is recommended. In this case, supply the Program Output signal from the Special Effects Generator to the vectorscope. While observing the vectorscope, adjust the Subcarrier Phase Coarse switch ㊱ and Fine Control ㊲ so that the phase of the colour bars from the camera matches that of the bars generated by the Special Effects Generator.



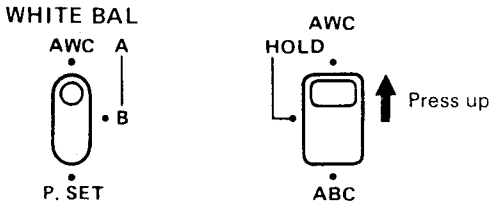
5) Reset the Colour Bar/Camera Selection switch ㉘ from the BAR to the CAMERA position.

6) Select the proper filter according to the colour temperature at the scene, using the Filter Wheel ㉙ while referring to the Table on page 43.

7) Set the black balance as follows:
Set the Auto White/Auto Black Set switch ⑥ to the ABC position momentarily by pressing it down.
The lens iris is automatically closed and the black balance is set automatically in approximately 5 seconds. When the black balance has been set, the lens iris automatically returns to its previous position. The Auto Warning indicator blinks while the black balance is being set and it goes off when the black balance has been correctly set. While the black balance is being set, "ABC" also blinks in the viewfinder screen, and "ABC OK" appears when the setting is completed. After a few seconds "ABC OK" disappears from the screen.
If the Auto Warning indicator remains lit and "ABC NG" appears in the viewfinder screen, the black balance adjustment should be carried out once more. Refer to "Setting the Black Balance" on page 41 for details.

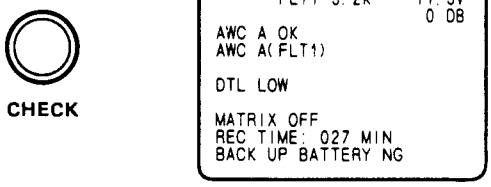


8) Set the white balance as follows:
Set the White Balance Selection switch ㉓ to the AWC A or AWC B position.
While aiming the camera at a white object, e.g. white paper or a white wall, set the Auto White/Auto Black Set switch ⑥ to the AWC position momentarily by pressing it up. The white balance is automatically set. When the white balance has been set, the blinking Auto Warning indicator in the viewfinder screen goes out and the blinking "AWC A" or "AWC B" turns into "AWC A OK" or "AWC B OK", respectively. This indication disappears after a few seconds.
If the Auto Warning indicator remains lit and "AWC A NG" or "AWC B NG" appears in the viewfinder screen, the white balance adjustment should be carried out once more. However, before proceeding with the adjustment, make sure the Filter Wheel ㉙ is set correctly. Refer to "Setting the White Balance" on page 42 for details.



9) Confirm the flange-back adjustment of the lens as follows:
- Aim the camera at a dark object more than 2 m (6 ft) from the camera.
- Zoom in (from wide-angle to tele) with the Servo Zoom control ㊸ and adjust the lens focus with the Focus Ring ㊼.
- Zoom out (from tele to wide-angle) and confirm that the picture is in focus. If not, the flange-back of the lens should be adjusted according to the instructions in "Flange-back Adjustment" on page 40.

10) The system condition may be confirmed by pressing the Check button ㉕ while a normal picture is being viewed. Refer to "Character Display" on page 44 for details.



11) Zoom in/out with the Servo Zoom control ㊸ or Zoom Ring/Lever ㊾ until the desired composition is achieved.
Turn the Focus Ring ㊼ until the object is in sharp focus by watching the picture in the viewfinder.
Close-up (macro) shooting: After setting the Servo/Manual Zoom Selection switch ㊿ to the MANU (Manual) position, turn the Zoom Ring/Lever ㊾ to the macro range while depressing the Macro button ㊽.
In the macro mode, objects as close as 10 mm (3/8") from the lens surface can be recorded.

OPERATING PROCEDURE FOR STUDIO APPLICATIONS

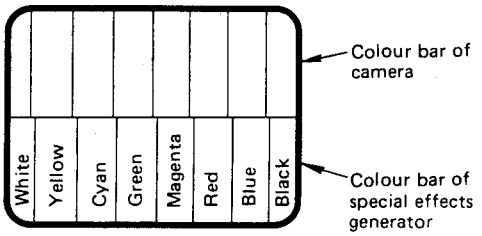
1) Make all required connections and make sure the Genlock Input Termination switch ⑩① and the Auxiliary Input Termination switch ⑩② are properly set.

2) Set the switches as follows:

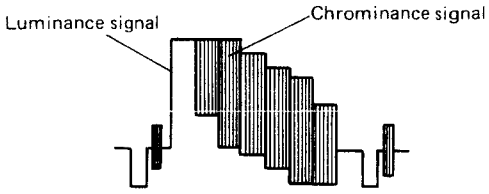
Unit	Switches	Positions
Camera	White Balance Selection switch ㉓	AWC A or AWC B
	Lens Iris Selection switch ⑦	NOR (Normal)
	Iris Control Selection switch ⑥② on lens	A (Auto)
	Detail Level Selection switch ㊲	HIGH or LOW
	Power Selection switch ㊶	VTR/RCU
	Power switch ㉗	ON
RCU	High Gain Selection switch ⑨②	0 dB
	Colour Bar/Camera Selection switch ⑨②	BAR
	White/Black Balance Selection switch ⑧⑤	AUTO
	Lens Iris Control ⑩⓪	AUTO
	Power switch ⑧①	ON

3) Set the Cable Length Compensation switch ⑧⑧ on the RCU according to the length of studio cable used.
Note: The standard cable length is 10 m (30 ft).

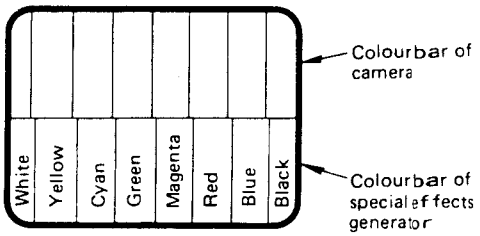
4) Fine-adjust the luminance gain and chroma gains as follows:
- Set the switches and controls on the Special Effects Generator so that the split colour bar picture is observed on the program monitor. Refer to the operating instructions accompanying the Special Effects Generator.



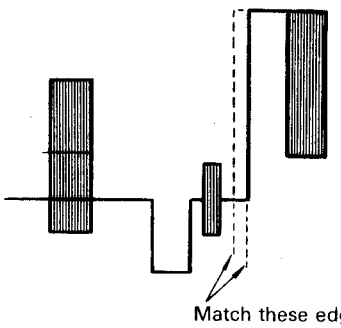
- Connect an oscilloscope to the Program Output connector of the Special Effects Generator or feed the Program Output signal to a waveform monitor. Observe the horizontal period of the Program Output signal.
- Adjust the Luminance Gain Fine control ⑨⑧ so that the luminance signal levels of both colour bar signals are equal. Adjust the Chroma Gain Fine control ⑨⑨ so that the chrominance signal levels of both colour bar signals are equal.



5) Adjust the horizontal phase of the camera as follows:
- Set the switches and controls on the Special Effects Generator so that the split colour bar picture is observed on the program monitor. Refer to theoperating instructions accompanying the Special Effects Generator.

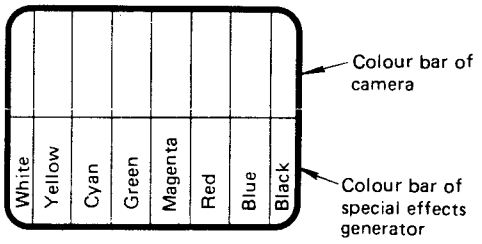


- Connect an oscilloscope to the Program Output connector of the Special Effects Generator and check the horizontal blanking period of the Program Output signal.
- Adjust the Horizontal Phase control ⑨③ on the RCU so that the phase of the horizontal blanking of the colour bar signal for the camera matches that of the Special Effects Generator.

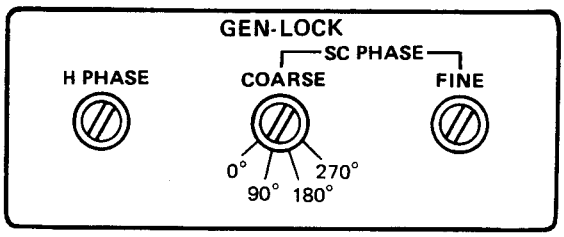


- The horizontal phase of the camera can be roughly adjusted by observing the split colour bar picture on the program monitor after all switches and controls have been correctly set. Adjust the Horizontal Phase control ㉝ so that the edges of the colour bar of the camera and Special Effects Generator roughly match each other.

  Note: The horizontal phase as well as the subcarrier phase explained in the next paragraph should be readjusted if the connections of coaxial cable length is changed in the system.



6) Adjust the subcarrier phase of the camera as follows:
   - Set the switches and controls on the Special Effects Generator so that the split colour bar picture is observed on the program monitor. Refer to the operating instructions accompanying the Special Effects Generator for details.
   - Adjust the Subcarrier Phase Coarse and Fine Controls ㉞ on the RCU so that the colours of the colour bars from the camera are similar to the colours of the colour bars generated by the Special Effects Generator.

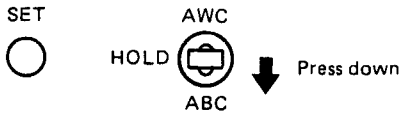


   - For precise adjustment, the use of a vectorscope is recommended. In this case, supply the Program Output signal from the Special Effects Generator to the vectorscope. While observing the vectorscope, adjust the Subcarrier Phase Coarse and Fine Controls ㉞ on the RCU so that the phase of the colour bars from the camera matches that of the bars generated by the Special Effects Generator.

7) Reset the Colour Bar/Camera Selection switch ㉜ on the RCU from the BAR to the CAMERA position.

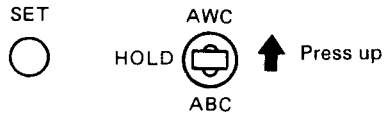
8) Select the proper filter according to the colour temperature at the scene, using the Filter Wheel ㉙ on the camera while referring to the Table on page 43.

9) Set the black balance as follows:
   Set the Auto White/Auto Black Set switch ㉞ on the RCU to the ABC position momentarily by pressing it down.
   The lens iris is automatically closed and the black balance is set automatically in approximately 5 seconds. When the black balance has been set, the lens iris automatically returns to its previous position. The Auto Warning indicator ㉝ on the RCU blinks while the black balance is being set and it goes off when the black balance has been correctly set. While the black balance is being set, "ABC" also blinks in the viewfinder screen, and "ABC OK" appears when the setting is completed. After a few seconds "ABC OK" disappears from the screen.
   If the Auto Warning indicator remains lit and "ABC NG" appears in the viewfinder screen, the black balance adjustment should be carried out once more. Refer to "Setting the Black Balance" on page 41 for details.



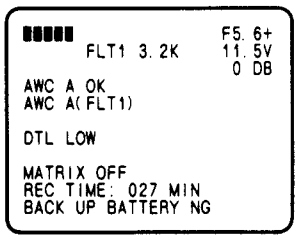
10) Set the white balance as follows:
    Set the White Balance Selection switch ㉓ on the camera to the AWC A or AWC B position.
    While aiming the camera at a white object, e.g. white paper or a white wall, set the Auto White/Auto Black Set switch ㉞ on the RCU to the AWC position momentarily by pressing it up. The white balance is automatically set. When the white balance has been set, the blinking Auto Warning indicator ㉝ on the RCU goes out and the blinking "AWC A" or "AWC B" in the viewfinder turns into "AWC A OK" or "AWC B OK", respectively. This indication disappears after a few seconds.

If the Auto Warning indicator remains lit and "AWC A NG" or "AWC B NG" appears in the viewfinder screen, the white balance adjustment should be carried out once more. However, before proceeding with the adjustment, make sure the Filter Wheel ㉙ is set correctly. Refer to "Setting the White Balance" on page 42 for details.



11) Confirm the flange-back adjustment of the lens as follows:
- Aim the camera at a dark object more than 2 m (6 ft) from the camera.
- Zoom in (from wide-angle to tele) with the Zoom Ring/Lever ㊾ or the Zoom Controller of the Lens Control Kit, and adjust the lens focus with the Focus Ring ㊼ or the Focus Controller of the Lens Control Kit.
- Zoom out (from tele to wide-angle) and confirm that the picture is in focus. If not, the flange-back of the lens should be adjusted according to the instructions in "Flange-back Adjustment" on page 40.

12) The system condition may be confirmed by pressing the Check button ㉕ on the camera while a normal picture is being viewed. Refer to "Character Display" on page 44 for details.

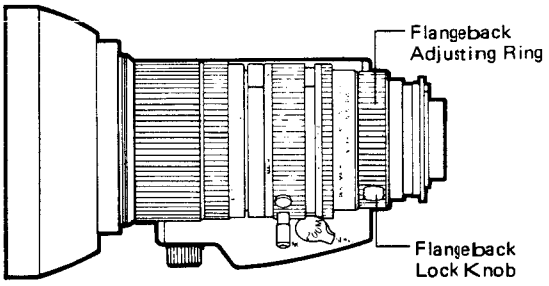


13) Zoom in/out until the desired composition is achieved. Focus the lens until the object is in sharp focus by watching the picture in the viewfinder.

LENS FLANGE-BACK ADJUSTMENT

If the flange-back is not adjusted correctly, correct focusing cannot be maintained through the entire zoom range.

- Aim the camera at an object more than 2 m (6 feet) away from the camera and loosen the Flange-back Lock knob ㊶.
- Zoom in (from wide-angle to tele) with the Servo Zoom control ㊸ and adjust the lens focus with the Focus Ring ㊼.
- Zoom out (from tele to wide-angle) and adjust the focus by turning the Flange-back Adjustment Ring ㊷



- Zoom in again and adjust the focus by turning the Focus Ring.
- Now zoom out and if necessary adjust the focus with the Flange-back Adjustment ring.
- Repeat this process until correct focus is maintained throughout the entire zoom range. When the adjustment has been completed, tighten the Flange-back Lock knob.

Note: Once the flange-back of the zoom lens has been adjusted, no further adjustment is necessary unless the lens is changed.

SETTING THE BLACK BALANCE

1. Black Balance

Correct setting of the black balance is required for producing correct colours, especially in low-light situations. Once the black balance has been correctly set, the setting is maintained in a special memory, for at least one year. The setting will not be lost, even though camera power is turned off.

For best results, it is recommended that the black balance adjustment be carried out, however, if the camera has not been used for a long period of time.

Please note that the back-up battery will supply power for more than ten years.

2. Automatic Black Balance Setting

- Set the Iris Control Selection switch ⑫ on the zoom lens and the Lens Iris Control ⑩ on the Remote Control Unit (RCU) to the A (Auto) position and AUTO position, respectively.

  Note: If you need to set the black balance while in the manual iris control mode, the incoming light should be blocked by setting the Filter Wheel ㉙ to No. 4 (CLOSE) or capping the lens.
- Set the Auto White/Auto Black Set switch ⑥ on the camera or ㉔ on the RCU (in studio application) to the ABC position momentarily by pressing it down. The lens iris is closed, blocking incoming light, and the black balance is automatically set in approximately 5 seconds. When the black balance has been set, the lens iris returns to its previous position.

  The Auto Warning indicator in the 1.5" viewfinder and indicator ㉓ on the RCU blink while the black balance is being set. The indicators go out when the black balance has been set. While the black balance is being set, "ABC" blinks in the viewfinder, and "ABC OK" appears when the black balance has been correctly set. This indication disappears after a few seconds.

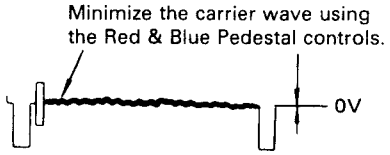
  If the Auto Warning indicators remain lit and "ABC NG" appears in the viewfinder screen, the black balance adjustment should be carried out once more.

Note:

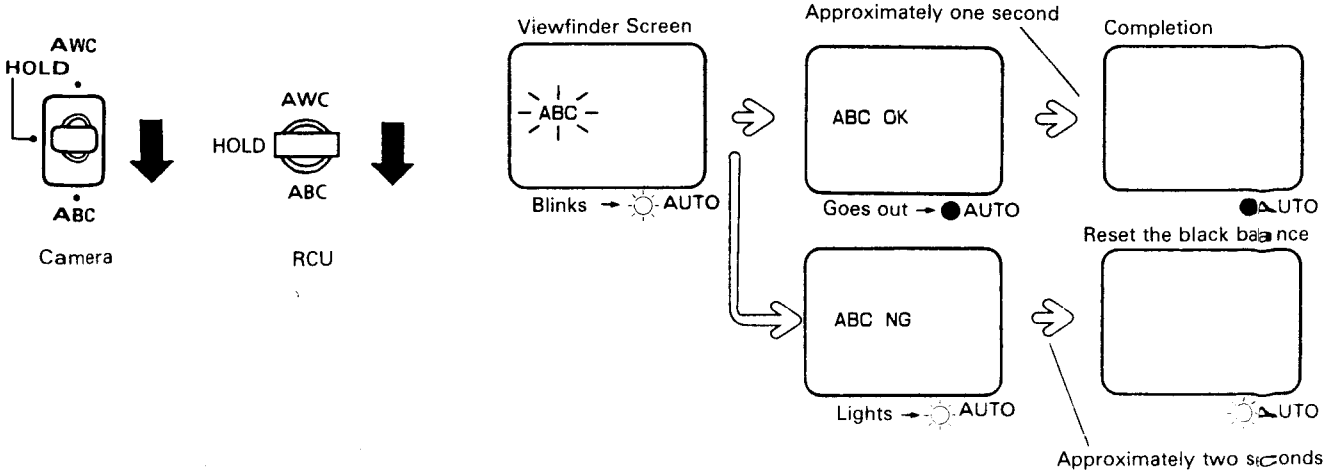
1. Since the black balance adjustment always is performed automatically first at 0 dB gain and then at +18 dB gain, the picture will flash in the viewfinder while the black balance is being set. This flashing will help to inform you of present adjustment.
2. The black balance setting will be kept in the memory for at least one year, even if the power to the camera is turned off. (The memory back-up battery will supply power for up to ten years.) It is recommended, however, the black balance be reset if the camera has not been in use for a long time.

3. Manual Black Balance Setting (Studio Application)

- Manual adjustment of the black balance is possible by adjusting the Red Pedestal and Blue Pedestal controls ㊱ on the RCU.
- Set the White/Black Balance Selection switch ㉕ on the RCU to the MANUAL position and close the lens iris by setting the Filter Wheel ㉙ to No. 4 or capping the lens.
- Observe the signal waveform of the video output signal on an oscilloscope or a waveform monitor.
- Adjust the Red Pedestal and Blue Pedestal controls ㊱ on the RCU so that the carrier wave of the video output signal is at minimum.



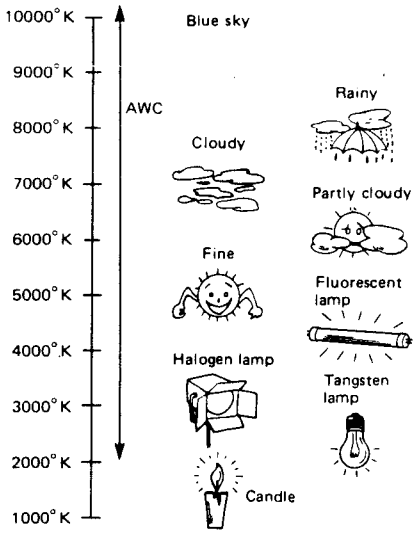
- The overall pedestal level can be adjusted by the Total Pedestal Level control ㉟ on the RCU.



SETTING THE WHITE BALANCE

1. White Balance

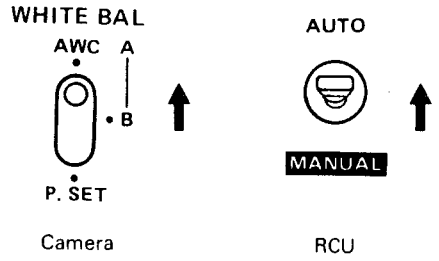
- Light can be measured in terms of its colour temperature, stated in degrees Kelvin (°K). On a ranking scale, light blue has a higher colour temperature than reddish light. Thus, when the camera is aimed at an object illuminated by a light source having a high colour temperature, the produced image will be somewhat bluish, while if the colour temperature is low, the image will turn reddish.
- In order to correctly reproduce the colours at the scene, the white balance should be set before recording is begun.



2. Automatic White Balance Setting

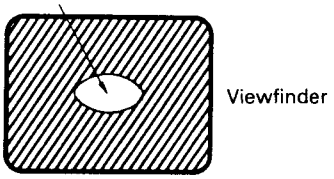
- Two white balance settings, for two different lights sources such as indoors and outdoors, can be kept in the two white balance memories, as follows:
  Colour Temperature in which automatic white balance control is possible: Approximately 2200°K — 11,000°K using the Filter Wheel ㉙.
- Use the Filter Wheel ㉙ to select the proper filter according to the colour temperature of the light source at the scene. Refer to the table over filter settings on page 43.

- Set the White Balance Selection switch ㉓ on the camera to the AWC A or AWC B position, and the White/Black Balance Selection switch ㊺ on the RCU to the AUTO position.

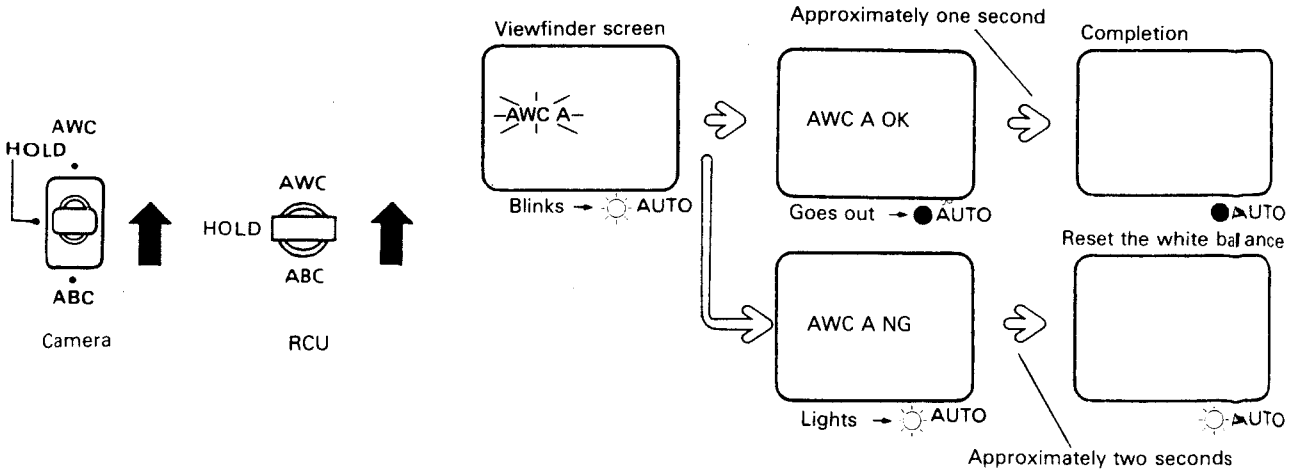


- While aiming the camera at a white object, e.g. white paper or a white wall, adjust the zoom, center on the white image and make sure that at least 10% of the viewfinder screen is occupied by the white image.

White object: more than 10% of viewfinder screen



- Set the Auto White/Auto Black Set switch ⑥ on the camera or ㊹ on the RCU (in studio application) to the AWC position momentarily by pressing it up.
  The white balance is automatically set in approximately 2 seconds. When the white balance has been set, the Auto Warning indicator in the 1.5" viewfinder and the indicator ㊸ on the RCU blink, and the indicators go out when the adjustment is complete. When the white balance has been correctly set, the blinking "AWC A" or "AWC B" in the viewfinder turns into "AWC A OK" or "AWC B OK", respectively. This indication disappears after a few seconds.
  If the Auto Warning indicator remains lit and "AWC A NG" or "AWC B NG" appears in the viewfinder screen, the white balance adjustment should be carried out once more.
  However, before proceeding with the adjustment, make sure the Filter Wheel ㉙ is set correctly.

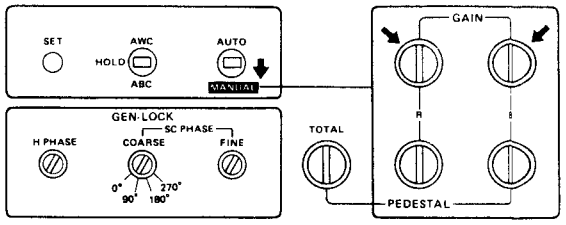


Note:

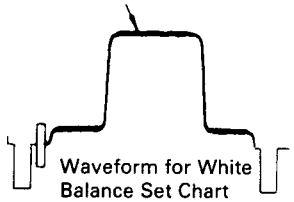
1. The white balance setting (as well as the black balance setting) will be kept in the memory for at least one year, even if the power to the camera is turned off. (The memory back-up battery will supply power for up to ten years.) It is recommended, however, the white balance be reset if the camera has not been in use for a long time.
   The white balance should also be reset when moving to another light source that is not covered by any of the settings in the two white balance memories.
2. When the white balance is reset, the previous setting in the corresponding memory is reset.
3. When two white balance settings have been stored in the memory, when moving between these two light sources, simply flick the White Balance Selection switch ㉓ to the position matching the light source. Recording is not interrupted when the white balance is reset.
4. If the camera has not been used for a long period of time, the white balance (as well as the black balance) should be reset before recording is begun.
5. Allow a few minutes of warm-up time before setting the white balance. This will allow a higher degree of precision when making the adjustment.
6. The white balance may not be correctly set under the following conditions:
   - In low light situations
   - In extremely bright light situations
7. If recording is to be carried out under sunlight, the white balance setting should be performed against a white surface exposed to the sun to avoid colour distortion. Please note that if the white balance has been set in this manner, only a slight colour distortion will appear when turning the camera towards shades.

3. Manual White Balance Setting (Studio Application)

- The white balance can be set manually, if so desired, from the RCU.
- Use the Filter Wheel ㉙ to select the proper filter according to the colour temperature of the light source at the scene. Refer to the table over filter settings on page 43.
- Set the White/Black Balance Selection switch ㉕ on the RCU to the MANUAL position.
- Aim the camera at at a white object, e.g. a white paper or white wall.
- Observe the signal waveform of the video output signal on an oscilloscope or a waveform monitor.
- Adjust the Red Gain and Blue Gain controls ㉖ on the RCU so that the carrier wave of the video output signal is at minimum.



Minimize the carrier wave using the Red & Blue Gain controls.



Waveform for White Balance Set Chart

4. Filter Wheel Settings

- Select the filter according to the light source at the scene.

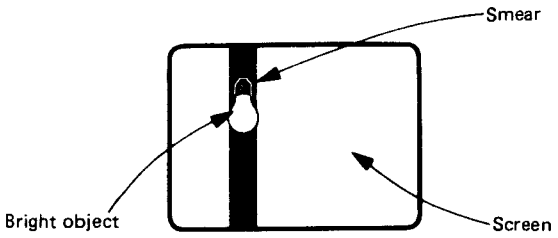
	Object/Scene & Light Source Condition	Colour Temperature	Wheel No.
INDOOR	Halogen Lamp or Tungsten Lamp (Studio)	3200°K	1
INDOOR	Fluorescent Lamp (White)	4500°K	3
OUTDOOR	Fluorescent Lamp (Daylight)	6500°K	3
OUTDOOR	Daylight (Sunny)	4500°K	2
OUTDOOR	Daylight (Fine-Partly Cloudy)	5000° — 6000°K	2
OUTDOOR	Cloudy	7000° — 7500°	3

Note: The setting of the Filter Wheel ㉙ is displayed in the viewfinder screen. Refer to "Character Display" on page 44 for details.

PECULIAR PHENOMENA OF THE CCD

1. Vertical Smear

When the camera is aimed at the scene which contains excessively bright objects such as the sun, lamp or reflected light, vertical bars called smear may appear below the bright object in the picture.



2. Flickering

When the camera is used under a fluorescent lamp, flickering may appear in the picture since the CCD produced extremely low residual image called lag.

3. Fixed Pattern

The fixed pattern may be seen in the entire picture area when the operating temperature goes up.

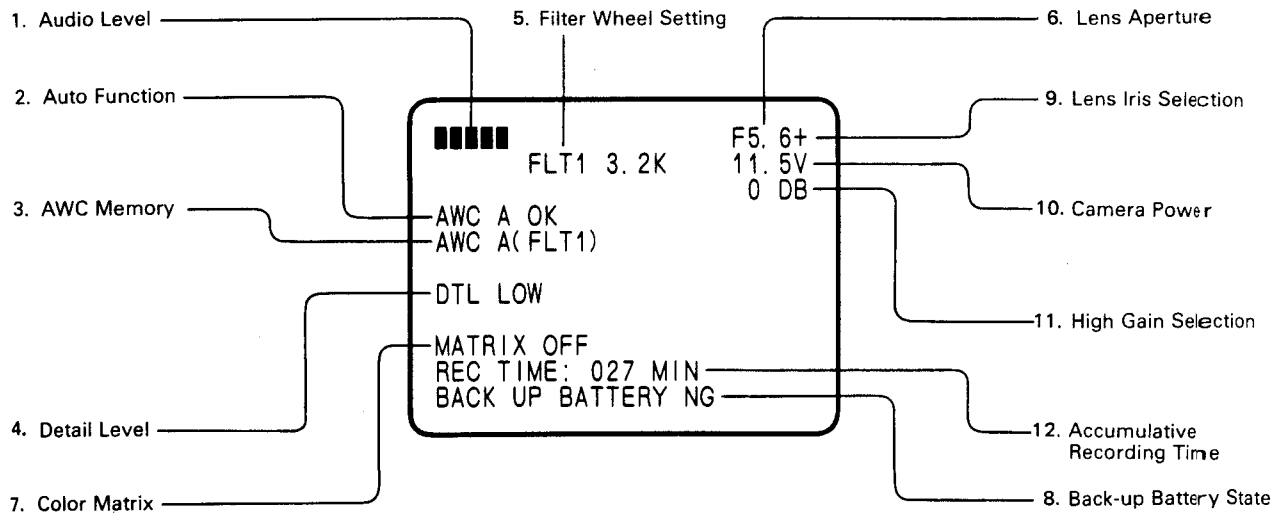
CHARACTER DISPLAY

The following operational & warning displays are shown in the viewfinder to show the operating condition of the camera.

Note:

1. The displays in the viewfinder are not recorded.
2. The displays are not shown while a playback picture is on the viewfinder screen.

● Display Positions



● Timing of Displays

The viewfinder displays appear in the viewfinder as stated below:

No.	Display	Displayed all the time	Displayed in short intervals only when the condition changes.	Displayed only when the Check button ㉕ is pressed.
1	Audio Level	O	—	O
2	Auto Function	—	O	—
3	AWC Memory	—	O	O
4	Detail Level	—	O	O
5	Filter Wheel Setting	—	—	O
6	Lens Aperture	O	—	O
7	Colour Matrix	—	—	O
8	Back-up Battery State	O	—	O
9	Lens Iris Selection	O	—	O
10	Camera Power	O	—	O
11	High Gain Selection	—	O	O
12	Accumulative Recording Time	—	—	O

1. Audio Level Display

The audio output level from the camera or the playback audio level of the 3/4" U-vision VTR is displayed by five square segments.

Display	Audio Level
■	Low Level
■■	
■■■	
■■■■	
■■■■■	High level

2. Auto Function Display

- Automatic White Balance Control (AWC)
  If the Auto White/Auto Black Set switch ⑥ on the camera or ㉔ on the RCU is pressed up, the white balance is automatically set. Refer to "Setting the White Balance" on page 42 for details.

Display	Display Time	Auto Warning Indicator	Cause	Remedy
FILTER CLOSE	2 seconds	ON	Filter Wheel ㉙ is set to CLOSE.	• Set filter Wheel referring to table on page 43. • Reset the white balance.
HIGH LIGHT	2 seconds	ON	Excessive bright light	• Reduce lighting on object or reduce lens iris. • Reset the white balance.
LOW LIGHT	2 seconds	ON	Insufficient light	• Prepare an additional light source. • Reset the white balance.
AWC PRESET	2 seconds	ON	White Balance Selection switch ㉓ is set to P.SET.	• Set the switch to AWC A or AWC B. • Reset the white balance
————	————	ON	Colour Bar/Camera Selection switch ㉘ on the camera or ㉜ on the RCU is set to BAR.	• Set the switch to CAMERA. • Reset the white balance.
AWC A/AWC B	2 seconds	Blinking	White balance is being set.	
AWC A/AWC B OK	1 second	OFF	White balance setting completed.	
AWC A/AWC B NG	2 seconds	ON	Switches are incorrectly set while the white balance is being set.	• Set all switches properly. • Reset the white balance.
AWC/AWC B NG FILTER?	2 seconds	ON	Filter Wheel ㉙ is set to wrong position.	• Set the Filter Wheel ㉙ correctly. Refer to table on page 43. • Reset the white balance.

Note: When the white balance adjustment has been completed, the Filter Wheel ㉙ setting is kept in memory and may be confirmed in the viewfinder by pressing the Check button ㉕.

- Automatic Black Balance Control (ABC)
  If the Auto White/Auto Black Set switch ⑥ on the camera or ㊹ on the RCU is pressed down, the black balance is automatically set. Refer to "Setting the Black Balance" on page 41 for details.

Display	Display Time	Auto Warning Indicator	Cause	Remedy
LENS OPEN	2 seconds	ON	Lens iris is not closed.	• Check the lens connector. • Set the Iris Control Selection switch ㊷ on the lens to A (AUTO). • Reset the black balance.
ABC	5 seconds	Blinking	Black balance is being set.	———
ABC OK	1 second	OFF	Black balance setting completed.	———
ABC NG	2 seconds	ON	Black balance setting is disturbed by some reason.	• Repeat black balance adjustment until ABC OK appears. If not contact qualified service personnel.

3. AWC Memory

When the White Balance Selection switch ㉓ is reset, one of the following displays appears for one second:

Display	Description
AWC A (FLT 1)	The White Balance Selection switch has been set to AWC A. The Filter Wheel setting previously used together with AWC A is also displayed.
AWC B (FLT 2)	The White Balance Selection switch has been set to AWC B. The Filter Wheel setting previously used together with AWC B is also displayed.
AWC PRESET	The White Balance Selection switch ㉓ is set to P.SET.

Note: The Filter Wheel setting is displayed as 1, 2 or 3.

4. Detail Level Display

The detail/aperture level is displayed for one second when the setting of the Detail Level Selection switch ㊲ is changed.

Note: The detail/aperture level is also displayed when the Check button ㉕ is pressed.

Display	Position of Detail Level Selection switch ㊲
DTL HI	HIGH
DTL LOW	LOW
DTL OFF	OFF

5. Filter Wheel Setting Display

The colour temperature conversion filter presently in use is displayed when the Check button ㉕ is pressed.

Display	Position of Filter Wheel ㉙
FLT1 3.2K	1 3200°K
FLT2 5.6K+ND	2 5600°K + 1/8 ND
FLT3 5.6K	3 5600°K
FLT4 CLOSE	4 CLOSE
FLT NG	The Filter Wheel ㉙ is not set to a click stop. Reset the wheel.

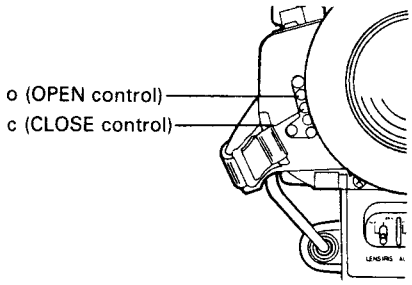
6. Lens Aperture Display

The lens aperture/iris is adjusted automatically according to the incoming light intensity. The F-number, i.e. aperture/iris opening, is displayed in the viewfinder when a standard Panasonic zoom lens, such as the J12X10BKRSM, with a 12-pin lens connector is used.

Note:

1. The F-number is not displayed if the lens is connected using an 8-pin lens connector.
2. If the F-number displayed differs from the actual F-number in use, correct the F-number displayed using the controls on the front of the lens.
   - Adjust the OPEN control to lens iris F2.8.
   - Adjust the CLOSE control to lens iris F11.

   Refer this adjustment to qualified service personnel.



Display
OPEN
F2
F2.8
F4
F5.6
F8
F11
CLOSE

7. Colour Matrix Display

The setting of the Colour Matrix ON/OFF switch is displayed while the Check button ㉕ is being pressed.

Note:

1. The Internal Matrix ON/OFF switch has been preset to OFF at the factory.
2. Refer colour adjustment using internal controls to qualified service personnel.

Display	Description
MATRIX ON	The switch is set to ON. Colour reproduction can be adjusted slightly through use of internal controls.
MATRIX OFF	The switch is set to OFF. Standard colour reproduction is obtained.

8. Back-up Battery State Display

The back-up battery for the white balance and black balance memories as well as the character display is almost worn out when "BACK UP BATTERY NG" is displayed.

Replace the back-up battery immediately.

Note:

1. Refer replacement of the back-up battery to qualified service personnel.
2. The back-up battery will supply power for approximately 10 years.

9. Lens Iris Selection Display

The setting of the Lens Iris Selection switch ⑦ is displayed.

Display	Description
+	The Lens Iris Selection switch ⑦ is set to 1/2 OPEN. The lens iris is opened an extra 1/2 F-stop from the standard lens iris/aperture.
(no display)	The Lens Iris Selection switch ⑦ is set to NOR (normal). Lens iris/aperture is normal.
–	The Lens Iris Selection switch ⑦ is set to 1/2 CLOSE. The lens iris is closed an extra 1/2 F-stop from the standard lens iris/aperture.

10. Camera Power Display

The voltage level supplied to the camera, from the Battery Pack, AC Adaptor/Charger or VTR is displayed.

Note:

1. If "BATT" is displayed, replace the battery pack. The battery pack will supply sufficient power for only a few minutes after this display lights.
2. Since a voltage check is carried out only every 10 seconds by the system, the voltage display may be slightly delayed.

Display	Present Voltage Level
16V	16 V or more
15V	About 15 V
14V	About 14 V
13V	About 13 V
12V	About 12 V
11.5V	About 11.5 V
11 V	About 11 V
10.8V	About 10.8 V. Replace Battery.
BATT	Less than 10.6 V. Replace battery!

11. High Gain Selection Display

When the setting of the High Gain Selection switch ㉔ on the camera or ㉜ on the RCU is changed, this is indicated in the viewfinder for one second.

Note: This fact is also indicated when the Check button ㉕ is pressed.

Display	Shutter/High Gain Indicator	Position of High Gain Selection switch ㉔ ㉜
0 DB	OFF	0 dB
9 DB	ON	+9 dB
18 DB	ON	+18 dB

12. Accumulative Recording Time Display

While the Check button ㉘ is being pressed, the accumulative recording time is displayed in minutes.

Note:

1. The display value is reset to 000 MIN when the Recording Time Reset button ㉙ is pressed.
2. The maximum recording time that can be displayed is 999 MIN. If the recording time should exceed this value, the display will start counting again from 000 MIN.
3. If the camera is used in a system configuration with the Remote Control Unit (RCU), the time the Tally lights is lit is accumulated in this display.

SPECIFICATIONS

ENG Colour Camera WV-F200AE

Pick-up System: Middle index prism system (F1.4)

Image Sensor: Three 2/3" interline transfer CCDs
Pixels: 500 (Horizontal) × 582 (Vertical)

Scanning Standard: 625 lines, 50 fields, 25 frames

Synchronizing System: Internal or external (gen-lock), automatically switchable
Internal: PAL standard
External (gen-lock) Input: PAL composite (VBS) signal or black burst signal

Subcarrier Phase for Gen-lock: Freely adjustable over 360°

Horizontal Phase for Gen-lock: Adjustable from −0.1 µsec to +3.5 µsec.

Video Output Four outputs
1.0 Vp-p PAL composite/75 ohms (BNC connector)
1.0 Vp-p PAL composite/75 ohms × 1 (32-pin VTR/RCU connector)
(PAL composite, Y/C component switchable)
PAL: 1.0 Vp-p PAL composite/75 ohms × 1 (32-pin VTR/RCU connector)
Y/C: 1.0 Vp-p luminance (Y) composite/75 ohms × 1 (32-pin VTR/RCU connector)
0.3 Vp-p burst level chrominance/75 ohms × 1 (32-pin VTR/RCU connector)
(R/G/B, Y/PB (B-Y)/PR (R-Y), Y/C/B switchable)
R/G/B: 0.7 Vp-p/75 ohms × 1 each
Y/PB/PR: Y: 1.0Vp-p (Sync: 0.3V)/75 ohms X 1
PB/PR: 0.525Vp-p/75 ohms (at EBU colour bar) x 1 each
Y/C/B: Y: 1.0 Vp-p (Sync: 0.3V)/75 ohms × 1
C: 0.3 Vp-p burst level chrominance/75 ohms × 1
B: 0.7 Vp-p/75 ohms × 1

Auxiliary Input: 1.0 Vp-p composite/75 ohms through 32-pin VTR/RCU connector

Audio Input: MIC: −70 dBm × 1 (XLR connector)

Audio Output: −20 dBm or −60 dBm/unbalanced, switchable (32-pin VTR/RCU connector)

Illumination Required: 2000 lux at F5.0, 3200°K

Minimum Illumination: 30 lux at F1.7 with +18 dB gain, more than 70% output level

Signal-to-noise Ratio (Nominal): 57 dB (typical, luminance) without gamma and aperture correction

Horizontal Resolution (at center): 620 lines (typical)

Registration: 0.05% (entire picture area, excluding lens)

Detail/Aperture: Horizontal and vertical (2-line type)

White Balance: Automatic white balance setting (AWC with two memories and Preset)

Black Balance: Automatic with pulse canceller

Encoder: Y,U,V

Colour Bar: Built-in EBU colour bar generator

Colour Conversion Filters: 3200°K, 5600°K with 12.5% ND, 5600°K, Close

Maximum Cable Length: VTR Cable: 30 m (no power supply via cable)
10 m (power supply through cable)
32-pin Studio Cable: Max. 300 m with cable compensator

Switches:
Camera Power, Colour Bar/Camera Selection, High Gain Selection, White Balance Selection, Auto White/Auto Black Set, Level Indicator ON/OFF, VTR Start/Stop, Check, Lens Iris Selection, Detail Level Selection, Subcarrier Phase Coarse, Recording Time Reset
Camera Adaptor: VTR Compatibility, Audio Level Selection, Audio Monitor Selection, VTR Video Output Selection, Power Select, RCU/VTR Signal Selection
Viewfinder Peaking ON/OFF, Tally ON/OFF
Zoom Lens (J12X10BKRSM) Servo/Manual Zoom Selection, Servo Zoom Control, Iris Control Selection, Auto Iris, Return Video, Macro, VTR Start/Stop

Controls:
Camera Total Pedestal, Red Gain, Blue Gain, Subcarrier Phase Fine, Horizontal Phase, Lens Iris
Camera Adaptor Audio Monitor/Intercom Level
Viewfinder Brightness, Contrast

Standard Lens (J12X10BKRSM):	12:1 auto iris servo control zoom lens, 10 — 120 mm with macro mode, F1.7	
Lens Iris:	Automatic or manual	
Lens Mount:	Bayonet mount for 2/3" pickup device	
Lens Filter Size:	82 mm P=0.75	
Viewfinder:	1.5" (1-3/8" actual image size) electronic viewfinder with character display and zebra level indicator	
Power Source:	12 V DC, 5 sources as follows: (1) Battery Pack (2) AC Adaptor (3) External DC source through 4-pin DC connector (4) VTR (external AC adaptor) (5) Remote Control Unit through VTR/RCU connector	
Battery Pack Operating Time:	Approximately 1 hour with WV-PS60 Approximately 2 hours with WV-PS33	
Power Consumption:	Camera Head	12.0 watts (12 V DC, 1.0 A)
	ENG Configuration	14.4 watts (12 V DC, 1.2 A)
	Studio Configuration	24.0 watts (12 V DC, 2.0 A)
Ambient Operating Temperature:	−5°C — +45°C	
Ambient Operating Humidity:	30 % — 90 %	
Dimensions:	Camera Head Only (WV-F200E)	173(W) × 257(H) × 330(D) mm
	ENG Configuration (with WV-PS60)	249(W) × 257(H) × 520(D) mm
	Studio Configuration	195(W) × 464(H) × 550(D) mm
Weight:	Camera Head only	3.5 kg (7.7 lbs)
	ENG Configuration	6.4 kg (14.1 lbs)
	Studio Configuration	8.4 kg (18.5 lbs)

Dimensions and weights are approximate.
Specifications are subject to change without notice.

SYSTEM ACCESSORIES

- COLOUR CAMERA WV-F200AHE
  - Camera Head WV-F200AHE ..... 1 set
  - Camera Adaptor WV-AD42BE ..... 1 set

- COLOUR CAMERA WV-F200AE
  - Camera Head WV-F200AHE ..... 1 set
  - Camera Adaptor WV-AD42BE ..... 1 set
  - 1.5" Electronic Viewfinder WV-VF38AE ..... 1 set
  - 12X Servo Control Zoom Lens J12X10BKRSM .... 1 set.
  - Microphone WV-MC35 ..... 1 set
  - Tripod Mounting Adaptor WV-Q47 ..... 1 set
  - Carrying Case WV-CC37E ..... 1 pc.

- MAIN OPTIONAL ACCESSORIES
  - 1.5" Electronic Viewfinder WV-VF38AE
  - 5" Electronic Viewfinder WV-VF65BE
  - Remote Control Unit (RCU) WV-RC36
  - Unidirectional Electret Condenser Microphone WV-MC35
  - 12X Servo Control Zoom Lens J12X10BKRSM
  - Lens Control Kit WV-LK35E
  - Tripod Mounting Adaptor WV-Q47
  - AC Adaptor/Charger WV-PS31
  - Battery Pack (1.65 Ah) WV-PS60E
  - Battery Pack (3.5 Ah) WV-PS33E
  - Battery Charger DE-1232 (for WV-PS60E)
  - Battery Charger WV-BC30 (for WV-PS33E)
  - MII Format VTR Adaptor WV-VT10E
  - Battery Adaptor WV-AD19

- OTHER OPTIONAL ACCESSORIES
  - VTR Cable: WV-CA32/10 (32P-10P) ..... 3 m (10 ft)
    WV-CA32A/14 (32P-14P) .... 3 m (10 ft)
    WV-CA32A/26 (32P-26P) .... 3 m (10 ft)
  - 10-pin VTR Extension Cable:
    10H-30AS ..... 10 m (30 ft)
    10H-50AS ..... 17 m (50 ft)
  - 14-pin VTR Extension Cable:
    WV-CA14X30 ..... 10 m (30 ft)
  - Studio Cable: 32A-25 ..... 8 m (25 ft)
    32A-50 ..... 17 m (50 ft)
    32A-100 ..... 30 m (100 ft)
  - S-VHS Cable: WV-CA38
  - Lens Connector Conversion Cable WV-LC10

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